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OFFICIAL PUBLICATION OF THE MEDICAL SOCIETY OF VIRGINIA

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SIR RONALD ROSS
ISSUE

July, 1950

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Indication:

HAY FEVER

Virginia Medical Monthly

Vol. 77, No. 7
WHOLE No. 1177

RICHMOND, VA,. JULY, 1950

$2.00 A YEAR
25 CENTS A COPY

GUEST EDITORIAL

The Sixth Revision of the International List of Causes of Death

IN THE adoption of the Sixth Revision of the International Statistical Classification of Diseases, Injuries, and Causes of Death by the World Health Assembly in 1948, a significant forward step was taken in disease classification, making available for the first time a single list for the classification of both morbidity and mortality. The use of the same form for medical certification and the same method of classification by all nations will undoubtedly bring about better international comparability of medical and health statistics.

It is obvious that classification of data is essential to the quantitative study of facts or occurrences. As applied to the study of morbidity and mortality the arrangement must be both scientifically sound and practical for the purpose of statistical compilation. As some degree of uniformity in definition and arrangement is necessary, a *standard classification* of illness and death is essential.

The beginning and development of what is now known as the International Statistical Classification of Diseases, Injuries, and Causes of Death is quite remarkable. The Sixth Revision (1948) is an indirect descendent of a statistical classification proposed by Dr. William Farr, medical statistician in England in 1854. As late as 1893 no two countries in the world used exactly the same forms and methods for the statistical classification of causes of death. However, at a session of the International Statistical Institute held in Chicago in 1893 the eminent French demographer, Dr. Jacques Bertillon, presented on behalf of a special committee appointed for the purpose a draft of a classification for international use. This draft was adopted by several countries, and was recommended for use in the United States by the American Public Health Association in Ottawa, Canada, in 1898. It was further suggested that in order to keep abreast of scientific progress, the classification be revised every ten years. To carry out this proposal the French government has assembled successive conferences for the revision of the List of Causes of Death decennially since 1900. Continuous effort has been made to bring the International List more closely into line with advancing medical science and public health practices.

The Sixth Revision of the International List of Causes of Death was made under the auspices of the World Health Organization of the United Nations. Responsibility for compiling the Classification was given to a group of internationally recognized experts on health statistics, known as the "Expert Committee for the Preparation of the Sixth Decennial Revision of the International Lists of Diseases and Causes of Death". This committee reviewed and revised a preliminary draft of a proposed classification prepared by the "United States Committee on Joint Causes of Death," which had been tried out by a number of agencies in England, Canada, and the United States. The final draft made by the Expert Committee was accepted by the Sixth Decennial Revision Conference in Paris in 1948. It was then adopted by the first World Health Assembly in

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Geneva, Switzerland in July 1948, and at the same time regulations were issued to guide the nations in its application.

The Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death consists of two volumes. Volume 1 includes the International List of categories and inclusions, three special lists for tabulation of morbidity and mortality, and a section on medical certification and rules for classification. Volume 2 is the Alphabetical Index to the List and is a useful working tool in coding.

Although the Sixth Revision differs radically from previous revisions in its scope and arrangement, it maintains the principles of the original list and is built upon that framework. Departures have been made, however, whenever it was necessary to secure a better arrangement of related categories, and for the expansion required to include in the List a morbidity classification as well as mortality.

As various *axes* of classification (anatomical site, etiology, infective agents, etc.) are wanted by the different branches of medicine, a practical system of classification necessitates many compromises and adjustments in order to provide a common basis for general statistical use. The arrangement of the Sixth Revision of the International List, according to its main groups, is in the following order: First, the diseases caused by well-defined infective agents; next, malignant and benign neoplasms; then, diseases of the endocrine system, and allergic, metabolic and nutritional diseases. Most of the remaining diseases, those of the respiratory, circulatory, digestive and genito-urinary systems, are arranged according to their principal anatomical site. Special sections are provided for mental diseases, complications of pregnancy and childbirth, diseases of early infancy, senility, ill-defined conditions, and external causes of injury. The system consists of a series of 3-digit numbered categories to which diseases, injuries, and deaths are assigned. Many of the 3-digit categories are further subdivided by means of a fourth digit for greater detail in classification. In the Detailed List there are 610 rubrics of diseases, 153 categories for the classification of external causes of injury, and 189 for injuries according to the nature of the injury. In the previous revision (Fifth, 1938) there were 200 principle categories.

The application of the Sixth Revision of the International List to morbidity and mortality data is relatively simple when only one morbid condition is given on the medical record. However, as an increasingly greater proportion of hospital reports, death certificates, and other medical records contain multiple diseases and causes of death, the selection of the primary cause becomes a significant factor for statistical tabulation. In the past, the primary cause was selected in various ways in different countries. In the United States the Manual of Joint Causes of Death published by the United States Bureau of the Census was used as a mechanical guide in the selection of the cause to be tabulated. With the adoption of the Sixth Revision of the International Classification in 1948, an agreement was made for a uniform method of selecting the underlying cause of death. This was brought about by means of a new form of medical certification, which is a part of the Standard Certificate of Death recommended by the World Health Assembly. This form, first used internationally in 1949, is designed to aid the attending physician or surgeon in reporting the train of events leading to death. It places upon him the responsibility for indicating the *underlying cause of death*. Accordingly, mortality statistics in the future should reflect medical opinion.

As might be expected, the drastic change to the new method of selecting the cause of death to be tabulated disturbs comparability with past mortality figures. The effects of the change can be studied by coding each death certificate according to the old classification as well as the new. Then by means of a "comparability ratio", a link is provided between compilations for the past decade and those of the present. These ratios

indicate only slight discrepancies for some causes of death but quite significant differences for others. In comparing the frequency of a disease now with twenty years ago, however, it should be remembered that one is not comparing the actual number of cases or deaths now with the former period; one is really comparing the frequency with which a particular term was used to describe the disease entity by persons differing in medical education and outlook over a period of twenty years.

Against the many difficulties encountered in the change from the former system to the new is the outstanding advantage—mortality statistics will represent the opinion of the certifying physician, the person in the best position to determine the *underlying cause of death*. Accordingly, upon the physician is placed a great responsibilty and opportunity for making mortality statistics of maximum value to medical research and public health.

ANNA R. THOMAS

EDITOR'S NOTE: Miss Thomas is Supervising Statistician of the Bureau of Vital Statistics, State Department of Health, Richmond.

Bibliotheca Obstetrica

SORANUS OF EPHEUSUS, 2ND CENTURY

DIE Gynäkologie des Soranus von Ephesus Beburtshilfe, Frauen-und-Kinder Krankheiten, Diätetik der Neugeborenen. Ubersetst von Dr. Phil. H. Lüneburg. München. J. F. Lehmann. 1894. lx, 173, p. 23.4 cm.

In Soranus, ancient obstetrics and gynecology reached its highest state of perfection. He studied in Alexandria and practiced in the Rome of Trajan and Hadrian. He was the greatest of the Methodists, but according to Allbutt was too great a physician to be enthralled in any sect. Little that he wrote exists today. Happily, as Allbutt expresses it, he was one of the best-robed men of his age, and his work has been reconstructed by Ilberg and Valentine Rose. The familiar birth figures of the Middle Ages descended from him through Moschion. It is generally thought that he performed version on the living child, an operation that was lost in the Dark Ages and rediscovered by Paré and Gillemeau.

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HEPATIC AMEBIASIS; DIFFICULTIES IN DIAGNOSIS†*

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Newport News, Virginia,
and
HARRY NUSHAN, M.D.,‡
Kecoughtan, Virginia.

Amebic involvement of the liver is the commonest complication of intestinal amebiasis and is variously stated to occur in from five to seventeen per cent of all cases.[1,2] If autopsy statistics alone are considered, the percentage is much higher, ranging up to fifty per cent. Craig[1] is convinced that there are many instances of amebic liver abscess in the United States which are undiagnosed during life, basing his opinion on unsuspected cases he has seen at autopsy. The general incidence of amebiasis may be reasonably expected to increase following the return of thousands of American veterans from highly endemic areas of amebic infestation.

Early diagnosis of this condition, with institution of appropriate treatment, will practically eliminate fatalities and greatly decrease morbidity. In Klatshin's[3] series of 69 cases of hepatic amebiasis in military personnel in India there were no deaths and none required aspiration or surgical drainage. This is a very unusual record; a combination of early diagnosis plus the fact that his patients were usually seen soon after the onset of their illness, made it possible. In Ochsner and Debakey's collected series[2] the total mortality was 30.8 per cent, of those treated with emetine 9.1 per cent, and in their own series O. Craig, writing in 1944, felt that even under good treatment conditions, mortality would not be less than 20% if multiple abscess cases are included in the statistics.

The clinical picture of amebiasis of the liver has been described in many excellent articles in the last decade.[2,3,4,5,6,7,8,9] Fever, liver pain, leucocytosis and X-ray evidence of elevation and fixation of the diaphragm, are cardinal points stressed by most of these authors. A history of past dysentery or intestinal symptoms at the time is often absent. It is frequently impossible to demonstrate parasites or cysts in the stool. Many cases are atypical and do not present the clinical findings until late.

It is the purpose of this paper to present four cases of hepatic amebiasis, all seen and followed by the authors, who presented unusual diagnostic difficulties. Discussion will be limited to problems concerned with diagnosis. No attempt is made to cover details of treatment or evaluate recent drugs, such as chloroquine, which may be superior to emetine in this condition.[16,17,18]

Case I.—R. J. G. This 34 year old colored railroad worker was first admitted to the Veterans Administration Hospital on May 27, 1948. He stated

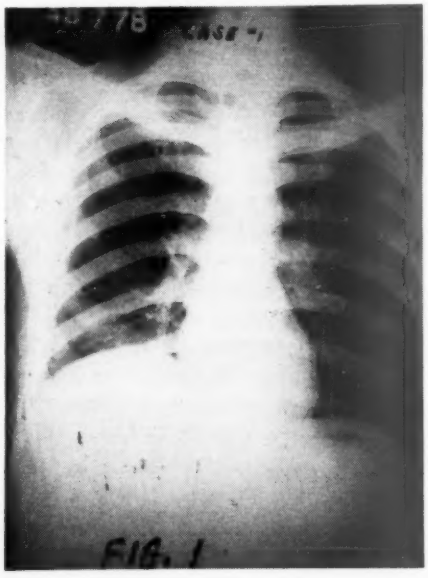

Fig. I—Case I—RJG. Elevation of the right diaphragm. This appeared for the first time four months after the onset of symptoms. Several previous X-rays showed no elevation.

*Read at the annual meeting of the Medical Society of Virginia at Fort Monroe, October 9-12, 1949.

†From the Medical and Surgical Services, Veterans Administration Hospital, Kecoughtan, Virginia. Sponsored by the VA and published with the approval of the Chief Medical Director. The statements and conclusions published by the authors are the result of their own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

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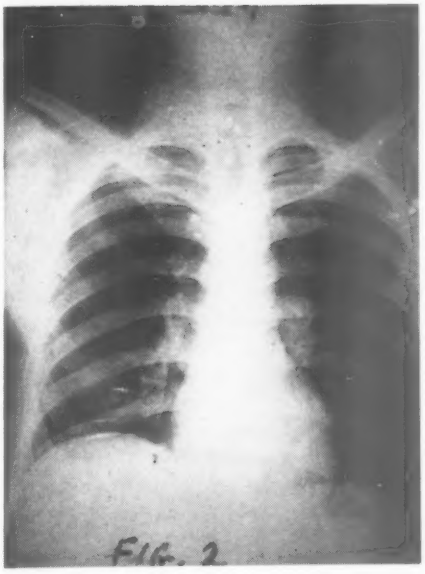

Fig. II—Case I—RJG. Return of the right diaphragm to a normal position. Therapy had been begun forty days previously.

that five days prior to admission he felt feverish and went home to bed. The next day he had several shaking chills. Fever and chills continued. He was admitted to the G.U. Service with a diagnosis of pyelitis. The physical examination was entirely negative. His WBC ranged from 16,500 to 8,000 at discharge. X-ray of the chest, KUB plate, and several examinations for malarial and intestinal parasites were negative. He received penicillin and sulfadiazine, and later quinine, but fever persisted until the 8th day. He was discharged with a diagnosis of fever of undetermined origin.

His second admission was on July 28, 1948. He stated that he had felt well since leaving the hospital and had gained 20 lbs. in weight. Three days prior to admission he developed sharp epigastric pain, worse after meals, associated with chilly sensations and sweats. He also had an unproductive cough and hot flashes. Physical examination again was entirely negative and he rapidly became asymptomatic. Fever persisted for 8 days and then the temperature became normal, without any specific treatment.

The third admission was on September 11, 1948. He stated he had returned to work but had not felt well since his discharge one month before and had continued to have night sweats. Three days preceding this admission, he was taken with rather severe epigastric pain radiating to the back. This pain continued to be intermittent but not severe. There were no other symptoms, except chills, fever, and sweats, similar to the two previous admissions. Examination revealed inconstant tenderness in the right upper quadrant of the abdomen and variable response to bimanual compression of the liver. All types of laboratory tests and comprehensive X-ray examinations were not remarkable, except that leukocytosis ranged above 20,000. At times he would have moderate tenderness over the liver; at other times, absolutely none. The surgical consultant did not feel there was enough evidence of right upper quadrant pathology to warrant exploration. During the following month he became gravely ill with spiking temperatures to 105°, drenching sweats, and marked loss of weight. On October 20th, 40 days after admission and 5 months after his initial symptoms, a complement fixation test for amebiasis was reported as positive. He was immediately started on emetine therapy and in four days the temperature was normal and he felt greatly improved. On October 28th, for the first time, X-ray examination showed elevation of the right diaphragm but by November 30th this had receded to a normal position. In addition to emetine, he received a course of diodoquin and carbarsone. Three months after discharge he was readmitted for a checkup and found to be in excellent condition, having gained 40 lbs. in weight. He was given another course of emetine and diodoquin. Six months later he continued to be in excellent health.

Comment: In this case, there was an interval of 5 months between the onset of symptoms and institution of specific treatment. During this time liver tenderness was never prominent and was usually absent, even with bimanual compression, and X-rays showed no elevation of the diaphragm. There was never diarrhea or any past history suggestive of amebic dysentery. The complement fixation test was positive and of great value. It is interesting that on two occasions the fever and symptoms subsided spontaneously without specific treatment. It is also noteworthy that medical treatment alone effected a cure, with recession of the diaphragm to its normal position.

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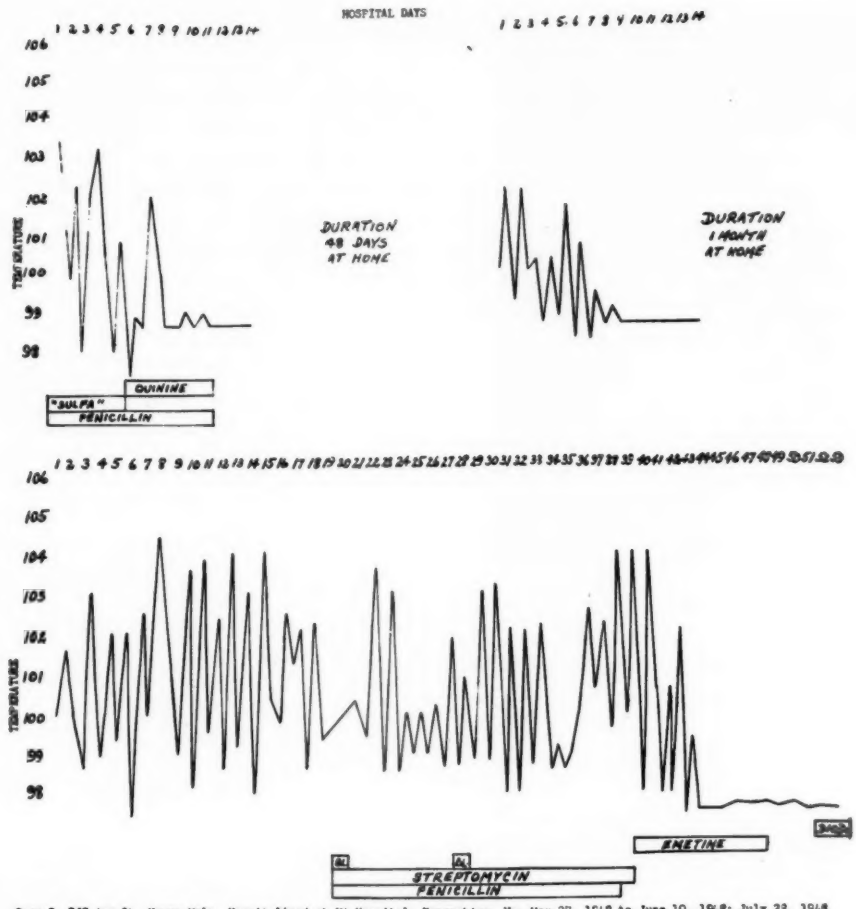


Case I RJG Age 34, Negro Male, Hospitalized at VA Hospital, Kecoughtan, Va., May 27, 1948 to June 10, 1948; July 23, 1948 to August 11, 1948; September 11, 1948 to December 3, 1948.

*Case II**.—J. S. This 37 year old white night watchman noticed chilly sensations and fever while at work in March, 1946.

His past health had been excellent, except that he had occasional chills and fever in the Spring for many years, which he thought were due to malaria. He had lived only in North Carolina and Virginia, and recalled no attacks of diarrhea.

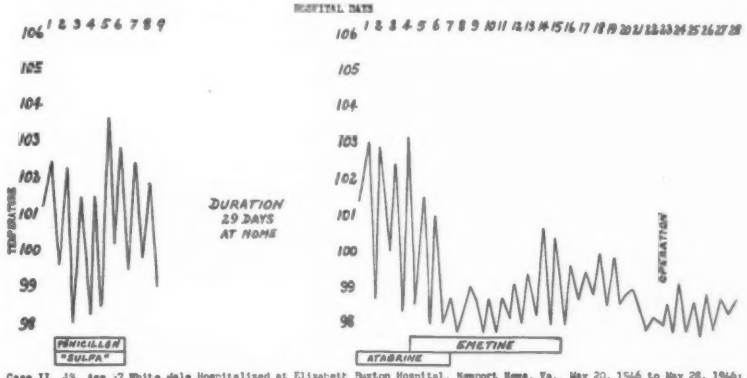
He continued to work in spite of chills, fever and sweats until April 21st. An attending physician had made various diagnoses, including malaria and undulant fever, and he had received courses of sulfadiazine and atabrine without benefit. He was finally admitted to the Elizabeth Buxton Hospital on May 20th, 1946, for further study. Examination revealed an acute and chronically ill man with obvious marked loss of weight. Physical examination revealed no other abnormal findings. There was absolutely no liver tenderness, either by palpation below the right costal border, bimanual compression of the liver, or fist percussion. This was repeatedly checked by one of two consultants who saw him, as amebic abscess was considered in the differential diagnosis. Laboratory work, including agglutinations and blood cultures, was negative except for a leukocytosis between 11,000 and 18,000. X-ray of the chest on two occasions showed no elevation of the diaphragm. He received a course of penicillin and sulfadiazine but continued to run a spiking temperature in the after-

*Included through the courtesy of Dr. C. P. Jones, Jr., Newport News, Virginia.

noon, followed by drenching sweats, and was discharged on the 8th hospital day.

Approximately two weeks later he was suddenly seized with sharp knife-like pain in the right lower chest. The chest was strapped by his wife, with marked relief. He later noticed slight swelling over the right lower costal margin and soreness over the region of the liver. Chills, fever, and sweating persisted and he was admitted to Duke University Hospital on June 26, 1946.

Examination showed great emaciation (weight loss 45 lbs.). There was marked liver tenderness with fixation and elevation of the right diaphragm. There were moist rales at the base of the right lung.



Case II JS Age 37 White male Hospitalized at Elizabeth Buxton Hospital, Newport News, Va., May 20, 1946 to May 28, 1946; at University Hospital, Duke University, June 26, 1946 to July 29, 1946.

On the 5th hospital day he was started on emetine therapy and in two days his temperature fell and the pain almost disappeared. X-ray examination, following thorotrast, localized a large abscess in the right posterior portion of the liver. He had a slight recurrence of fever on the 14th day, and on the 18th day aspiration, through the 9th interspace in the posterior axillary line, yielded 1,100 c.c. of pea soup green non-odorous pus. Culture of this material showed no growth and no amebae were found. He was discharged feeling much improved and at the present time is working and in good health.

Comment: The localizing symptoms and signs of amebic liver abscess were absent in this case until three months after onset. There was no diarrhea or previous history of dysentery. Failure to make an early diagnosis resulted in a long period of disability and necessitated aspiration of the abscess before final cure. If, in addition to looking for signs of liver tenderness and elevation of the diaphragm, a complement fixation test for amebiasis had been done, it is likely that proper treatment would have been started earlier.

Case III.—J. M. P. This 24 year old colored college student was admitted to the Veterans Administration Hospital on September 20, 1948. Two days previously he developed dull aching epigastric pain, accompanied by fever and sweats. The pain was continuous but not severe. There was no nausea, vomiting, or diarrhea.

The past history revealed a previous admission to this hospital in 1946 with a complaint of pressing pain in the umbilical region, coming on ½ hour after meals and relieved by stretching. The general physical examination at that time was negative except for slight tenderness in the epigastrium. Laboratory studies were normal, including a negative stool examination for parasites. X-ray of the chest and G.I. Series was negative. He became asymptomatic and was discharged with a diagnosis of functional indigestion.

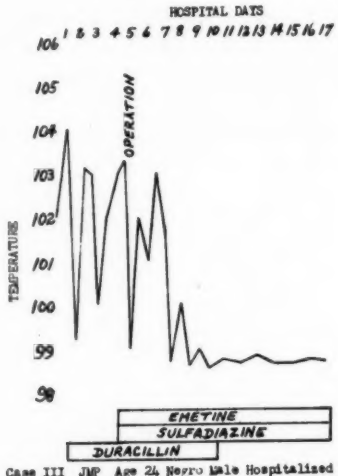
In 1945, while in the Phillipines, he developed diarrhea and was treated for amebiasis with emetine. He made a prompt recovery and has had no diarrhea since.

Physical examination revealed the abdomen to be flat and soft except in the epigastric region, where there was definite rigidity and exquisite tenderness. The tenderness was definitely worse to the left of the midline. The remainder of the examination was entirely negative.

Urinalysis was negative; the initial WBC was 9,800. Three stool examinations were negative for parasites or cysts.

He was transferred to the Surgical Service with

the diagnosis of an acute abdomen, type undetermined. During the next four days his temperature, in spite of adequate penicillin therapy, spiked to over 103° daily and WBC rose to 13,750 with 84% polys. Because of the suspicion of amebic abscess AP and lateral films of the diaphragm were made, and repeated, and were negative. On the 4th hospital day a fullness could be palpated in the epigastrium and it was felt unwise to delay surgery further.



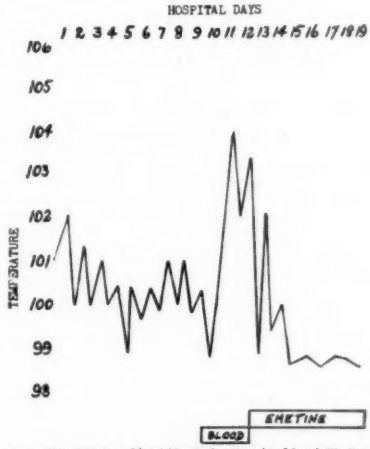
Case III JMP Age 24 Negro Male Hospitalized VA Hospital, Kecoughtan, September 20, 1948 to October 26, 1948.

On opening the abdomen the left lobe of the liver extended nearly to the umbilicus and an abscess within it was pointing slightly to the left of the midline. Aspiration resulted in return of 10 c.c. of dark red paste-like material. Several adjacent areas, which appeared involved, were left undisturbed. The abdomen was closed and the patient immediately started on emetine. The temperature returned to normal on the 3rd post-operative day and remained so. He was discharged asymptomatic on the 36th hospital day, having received 17 grs. of emetine in two courses. Examination of the pus removed revealed fibrin and blood and some leucocytes, but no amebae were seen.

Comment: In this case, amebic abscess was suspected but it was felt unwise to delay operation because of the possibility of a ruptured peptic ulcer. In retrospect, the presence of an enlarged tender liver, fever, and past history of amebic colitis, justified the immediate trial of emetine which would have clarified the situation. The complement fixation test for amebiasis was also indicated. The long interval between the attack of amebic dysentery and the onset of liver involvement has been noted by many writers.[1,2] It is interesting to speculate on the possibility that the hospitalization in 1946, with epigastric pain and tenderness, represented an earlier amebic hepatitis with spontaneous cure.

Case IV.—W. T. B. This 36 year old white waterman was admitted to the Veterans Administration Hospital February 1, 1949. He gave a history of being in a fight three weeks previously, at which time he lost considerable blood, and shortly thereafter he developed soreness in the right upper abdomen. This persisted and was accompanied by chills, fever, and sweats. At the onset he had several watery bowel movements for two days. The past history showed excellent health. He served in the European Theatre and had had no diarrhea.

On physical examination he appeared pale and acutely ill with a temperature of 102°. The sclerae were muddy but there was no jaundice. The abdomen was soft and slightly distended. The liver was enlarged two finger breadths below the costal margin and exquisitely tender. Compression of the right costal margin produced extreme pain.



Case IV WTB Age 36 White Male Hospitalized VA Hospital, Kecoughtan 2-1-49 to 3-5-49.

Laboratory work showed 52% hemoglobin, 3,200,000 RBC and WBC 15,200, with 87% polys. X-ray of the chest and G.I. Series was negative.

He continued to be acutely ill, with temperatures ranging up to 104°. A proctoscopic examination revealed two small ulcers in the rectum but no amebae could be identified in the scrapings. On the 8th hos-

pital day the Roentgenologist reported elevation of the anterior two-thirds of the right diaphragm consistent with subdiaphragmatic abscess. The patient was referred to Surgery for exploratory laparotomy. On the following day, however, a conference was held with the Branch Medical Consultant of the Veterans Administration, and it was decided to defer surgery pending a trial with emetine therapy. The complement fixation test for amebiasis was returned positive on the same day. Following emetine therapy, all symptoms abated. The temperature returned to normal in 48 hrs. and remained so and he was discharged asymptomatic on the 33rd hospital day.

Comment: This case clearly illustrates the high index of suspicion necessary to avoid over-looking this disease. The history of trauma also brought up the possibility of rupture of some viscus with secondary abscess or hemorrhage. The decision to delay exploration while observing the effects of a few days of emetine therapy took into consideration the great hazard of surgery in amebic abscess without preliminary emetine therapy. Again, the value of the complement fixation test was demonstrated. The possible role of trauma to the liver, as in this case, in precipitating hepatic amebiasis has been commented on by others. Alcoholic over-indulgence is also a well known predisposing factor.

DISCUSSION

Amebiasis of the liver may present great difficulties in diagnosis, even when that condition is considered in the differential diagnosis. This was particularly true in Cases I and II of this series where localizing signs over the liver were absent or inconspicious for some months. Naturally, with continued septic temperature and leukocytosis, these patients received full courses of antibiotices and sulfonamides. When these measures fail to influence the fever and careful search indicates no obvious focus of pus, amebic abscess must be considered, especially if the patient is a male between the ages of 20 and 50. An exactly similar case was reported by Noehren.[10] There was unexplained fever and leukocytosis without liver tenderness. Diagnosis was established two months after admission when X-ray showed elevation of the right diaphragm. It is in this type of case that the complement fixation test for amebiasis is particularly apt to be valuable. Craig[1] first published the technique of this test in 1929. Its usefullness was limited by the difficulty in preparing an efficient antigen, but recently much of this difficulty has been overcome.[11,12] Terry and Boziecvich[13] published 13 cases in which the test was done, in 10 of which it was positive. In 2 of the 3 false negatives a subsequent test, with potent antigen, gave positive results. There were no false positives. Although it should never be a substitute for careful search for the parasite, this test has an important place in the diagnosis of hepatic amebiasis.

Cases III and IV presented more or less the differential diagnosis of the acute abdomen. Cholecystitis, ruptured peptic ulcer, sub-diaphragmatic abscess, and ruptured viscus were the diagnoses most considered. Walters *et al.*[14] stressed the fact that the abscess may rupture as the initial symptom and produce an acute emergency. In these cases early diagnosis is essential to prevent a high mortality.

It may become necessary in suspicious cases to use emetine as a therapeutic test. Decrease in pain and fever is usually dramatic in two to four days. This is due to the high concentration of the drug in the liver as shown experimentally by Parmer.[15] If a large abscess has formed, aspiration will be necessary following emetine.

In three of the four cases presented, medical treatment alone was sufficient, since Case III had a small abscess which was aspirated only for diagnostic purposes and would certainly have healed with emetine therapy.

SUMMARY AND CONCLUSIONS

1. Four cases of hepatic amebiasis illustrating difficulties in diagnosis are presented.
2. Consideration of this disease in unexplained fevers with leukocytosis uninfluenced by antibiotics, and in acute abdominal conditions of the right upper quadrant, is stressed.
3. The value of the complement fixation test for amebiasis is emphasized.

BIBLIOGRAPHY

1. Craig, C. F.: Etiology, Diagnosis and Treatment of Amebiasis. Williams and Wilkins Company, Baltimore, 1944.
2. Ochsner, Alton, and DeBakey, Michael: Amebic hepatitis and Hepatic Abscess—An Analysis of 181 Cases with Review of the Literature. *Surgery* **13**: 460-493 (March) and 612-649 (April), 1943.
3. Klatshin, G.: Amebiasis of the Liver—Clarification, Diagnosis, and Treatment. *Annals of Internal Medicine* **25**:601-631 (October), 1946.
4. Sodeman, W. A., and Lewis, B. O.: Amebic Hepatitis. *Amer. Jour. of Tropical Medicine* **25**:35, 1945.

XUM

5. Albright, E. C., and Gordan, E. S.: Present Status of the Problem of Amebiasis. *Archiv. of Intern. Med.* **79**:253-271 (March), 1947.
6. Elsom, K. A., Rogers, A. M., and Wood, F. C.: Amebiasis Observation in an Army General Hospital in India. *Gastroenterology* **8**:135-153, 1947.
7. Ferguson, L. K., and Anderson, R. K.: Amebic Liver Abscess in Service Personnel. *Gastroenterology* **8**:332-342, 1947.
8. Berue, C. J.: Diagnosis and Treatment of Amebic Liver Abscess. *Surg., Gynec., and Obstet.* **75**: 235-238 (August), 1942.
9. Schulze, W., and Ruffin, Julian M.: Amebic Infection of the Liver As Seen in North Carolina. *N. Carolina Med. Jour.* **3**:62-63 (February), 1942.
10. Noehren, T. H.: Amebiasis in Diagnostic Dilemmas, *N. Y. State Jour. of Med.*, 46. **2**:2046-2048, 1946.
11. Kent, John F.: The Serodiagnosis of Amebiasis. *Bull. U. S. Army, Med. Depart.* **7**:647-648, 1947.
12. Kent, John F., and Rein, C. R.: Serodiagnosis of Amebiasis. *Science* **103**:598 (May), 1946.
13. Terry, L. L., and Boziecvich, J.: The Importance of the Complement Fixation Test in Amebic Hepatitis and Liver Abscess. *Southern Med. Jour.* **41**:691-702 (August), 1948.
14. Walters, W., Watkins, C. H., Butt, H. R., Marshan, J. M.: Amebic Abscess of the Liver Unsuspected Until Perforation. *Jour. Amer. Med. Assn.* **125**: 963, 1944.
15. Parmer, L. G.: On the Relative Efficacy of Emetine in Intestinal and Hepatic Amebiasis, Proc Soc. Exper. Biol. and Med. **68**:362 (June), 1948.
16. Conan, N. J., Jr.: Chloroquine in Amebiasis. *Amer. Jour. of Tropical Med.* **28**:107, 1948.
17. Emmett, John: Amebic Abscess of the Liver. *Jour. Amer. Med. Assn.* **141**:1, 22-24, September 3, 1949.
18. McVay, L. V.: Laird, R. L., Sprunt, D. H.: A Preliminary Report of the Successful Treatment of Amebiasis with Aureomycin. *Science* **109**:590-591, 1949.

DISCUSSION

DR. CHARLES M. CARAVATI, Richmond: This is a very important subject and one which is being overlooked. We are indebted to Drs. Read and Nushan for bringing it to our attention. As emphasized by them, the presence of intermittent fever, leukocytosis, with no other obvious cause, should make us look for amebiasis. The symptoms and signs of typical amebiasis are familiar to all of us but the obscure cases emphasized by them are the ones for which we should be on the alert.

I should like to stress several points. First, the search for the parasites should be thorough and should consist of these procedures: careful proctoscopic study with immediate search of the scrapings, repeated examinations of warm stools and thorough search of several watery stools obtained after saline purgatives or enemata.

A useful clinical finding can be elicited by means of fist percussion of the liver. Many normals will complain of pain after the trust, but, if the discomfort continues for as long as a couple of seconds and radiates toward the precordium, it suggests that the liver is the site of active pathology.

Whenever an abscess of the liver is suspected and aspiration seems indicated, emetin should be administered before the puncture. It adds greatly to the surgical effectiveness. The aspirate obtained seldom reveals the vegetative ameba, as commonly there is complete autolysis of the parasites by enzymatic action.

When the amebiasis is confined to the right colon and particularly to the cecum, abscess of the liver is probably more common; and, when it does occur, it is most often in the right lobe, as this sub-division receives practically all of the blood from the right half of the large bowel.

(Slides were shown illustrating the rather characteristic deformity of cecal ameboma, resulting from cecal amebiasis of quite long standing). Even after adequate treatment the deformity may persist for several weeks.

One practical point about the complement fixation test is that at present the test will be performed for any clinician by the Communicable Disease Center, U. S. P. H. S., Atlanta, Georgia.

A positive complement fixation indicates the presence of parenchymal damage due to amebiasis. A negative test is not as helpful.

I wish to thank Drs. Read and Nushan for emphasizing this important subject and to compliment them on the manner in which they presented it.

DR. DOUGLAS CHAPMAN, Richmond: There is one thing on which I want to comment, and that is the occurrence of heart complications after the giving of emetin. I think it is important to get an electrocardiogram on these people before they leave the hospital, because of the possibility of heart block.

Again, I have heard it said that patients that have diarrhea seldom have abscess, but if patients are constipated then they have abscess.

DR. JOHN TAYLOR RANSONE, Newport News: I should like to ask if any of these patients give symptoms which might be ascribed to neurotic or psychic disease.

DR. READ, closing discussion: I should like to thank Dr. Caravati for his very generous discussion of this paper. In answer to the doctor's question concerning cardiac involvement from the use of emetine, it is my belief that its toxicity has been much over-rated. Hundreds of patients were treated in India with emetine by American doctors in the last war and no serious complications were noted. It is important to keep the patient at rest during emetine therapy and to give a good rest period between courses.

Answering Dr. Ransone's question, I do not believe that amoebic abscess of the liver will often be confused with functional disease. There will usually always be some fever and some elevation of the leucocyte count if the patient is carefully observed. In my experience the indefinite abdominal pains following infectious hepatitis are much more apt to cause difficulty in this regard.

MEDICAL-DENTAL RELATIONS*

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Just what are medical-dental relations? What conceptions do the physicians and dentists scattered throughout the United States have when they hear the term medical-dental relations? If we are going to be perfectly honest with ourselves we can readily come to the conclusion that the vast majority of physicians and dentists have a very vague conception of this term. Probably one of the outstanding reasons for this lack of understanding in regard to the term medical-dental relations is our improper concept of disease treatment. Today's modern and proper concept of disease treatment is one which recognizes the treatment of disease as it affects any part of the body, whereas, today's improper concept of disease treatment is one which is somewhat similar to this but one which has certain reservations; one which has a tendency to ignore or overlook certain parts of the body in the treatment of disease. In order to demonstrate that most of us do have an improper concept of disease treatment, I am going to ask you to use your imaginations momentarily while I will assume to present a question to, let us say, all of the physicians in the United States, instead of the small group of physicians who might be reading this article. The question is simply this: "What might be the oral manifestations in the disease commonly known as diabetes mellitus?" Now, then, it won't require any great stretch of our imagination to realize that thousands upon thousands of the answers which we would receive in reply to that question, would be, to say the least, quite erroneous. Continuing in this same vein, let us ask all of the dentists a question. To the dentists—"What might be the general systemic manifestations of the disease commonly known as diabetes mellitus?" We can readily conclude that the character and quality of the answers which we would receive in reply to that question would perhaps be parallel or equivalent to the character and quality of the answers we received from the physicians. These two questions which I have just presented, together with our mythical answers, have a tendency to dramatically illustrate two things: (1) most of us do have an improper concept of disease treatment; and (2) most of us are exclusively interested in our own particular sphere of the medical arts only. One of the outstanding factors in our misconception of disease treatment is the vast gap which exists between the medical and dental professions; the almost utter lack of cooperation; the almost utter lack of harmony. In order to demonstrate to you that such a lack of harmony does exist I am going to use my same system of interrogation. I am going to ask more questions. Question No. I: To the physician: "In your diabetic case do you feel as though you have any relation to the dentist? Would you consult him?" Question No. II: To the dentists: "In your examinations of the oral cavities of your patients, do you conscientiously look for what might be oral manifestations of the disease diabetes mellitus so that you might be in a position to aid some potential diabetic by consulting some physician in regard to diagnosis and treatment?"

The answers to both of these questions should be yes, but, again, it won't be necessary to stretch our imagination to readily conclude that the vast majority of these answers will be negative. This negativeness, this lack of cooperation, this lack of harmony, is more apparent on the educational front of these two professions than anywhere else. Dr. Crawford, the Dean of the Dental School of the University of Minnesota, states that we have glaring examples of this lack of cooperation on the educational front of these two professions in matters pertaining to professional relations, professional society activities, governmental services and educational problems. Probably one of the strongest contributing factors in this divergence on the educational front is the difference in the educational systems of these two professions. For example, we know that the premedical course is of longer duration than the predental course. We know that in the past, at least, the basic sciences were taught more thoroughly in the medical schools than they were in the dental schools, and we know that the medical student must

*Presented at the meeting of the Williamsburg-James City County Medical Society, November 21, 1949.

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spend at least a year's time in some hospital as an intern before he may qualify as a *bona fide* licensed physician. While we know these things we know certain other things too in regard to these educational systems. For example, we know that the highest type of under-graduate course in, let us say, gross anatomy, given in the highest type of medical school, does not produce an anatomist. We know that an A grade under-graduate course in physiology given in an A grade medical school does not produce a physiologist. We are cognizant of the fact that anatomists and physiologists are produced through the mediums of post-graduate experience and post-graduate education. This trend of thought has a tendency to show us our differences in our under-graduate days and post-graduate days. In our under-graduate days we learn to study, whereas, in our post-graduate days we study to learn. This trend of thought also has a tendency to lead us to our imperfections. For example, we know that no man living today can thoroughly master all of the medical arts. No man will live long enough to even read the vast array of material which has been written on these subjects. Consider the volume upon volume which has been written on diabetes alone. Therefore, it quite naturally follows that, in a broad sense, most of us are, in reality, medical arts specialists, and I think that it behooves us as broad medical arts specialists to take advantage of our colleagues' knowledge through the medium of cooperation. One dentist in the past quite aptly expressed one type of cooperation. This dentist had been asked to address a meeting, a mixed group of physicians and dentists, and he had this to say, "If the dentist would just stay out of the antrum, the eye, the ear and the nose and throat, the physician would be very happy", and, he continued, "If the physician would just refrain from treating trench mouth and condemning perfectly good teeth, the dentist would be very happy." This dentist expressed one type of cooperation, a rather peculiar type of cooperation, a type of cooperation which is brought about by the process of having certain members of each of these professions refrain from doing certain things. Now, then, what might another type of cooperation be? Another type of cooperation might be one in which the members of both of these professions did certain things which were mutually agreeable—for example, in a case of diabetes mellitus. Some of you at this point may wish to refresh your memories in regard to this disease. Some of you might even mentally ask the question, "Just what might be the oral manifestations of diabetes mellitus?" You have perhaps noted that I have used the expression "might be". "Might be" in this particular instance is a very apt expression because competent medical authority does not recognize any specific symptom for this disease. Dr. Meekins, in his text-book entitled the Practice of Medicine, unequivocally states that we do not have any specific characteristic sign for this disease. While this is undoubtedly true, it is equally true that we do have certain oral manifestations which frequently accompany this disease. When we consider this fact and we co-relate it with the possibility that there may be as many as a million unknown diabetics, we become quite justified in expecting the dentists to do everything possible to aid in the detection of this disease. Under these circumstances, oral manifestations become a subject of prime importance. The oral manifestations which may accompany a case of diabetes mellitus are: (1) the gums are inflamed because of the lowered resistance of the diabetic. Gingivitis alone may exist, but as a general rule we have ample evidences of periodontoclasia. The gums are swollen, hypertrophied and detached from the roots of the teeth. The color of the gum tissue may vary from a deep red to a purple or may even be cyanotic in appearance. (2) Radiographically the bone of the diabetic presents a generalized osteoporosis with an enlargement of the medullary spaces. The interdental septums are resorbed and we have an abnormal amount of resorption in the boney tissues at the bifurcation of the roots of the teeth. (3) In the untreated diabetic we have a very rapid formation of salivary calculus. The mouth is dry, the tongue is enlarged and looks raw and we may detect an odor of acetone. In considering these oral manifestations which I have just presented, it is well to keep in mind that we may have these same manifestations in the non-diabetic; however, since the diabetic is very prone to infections, periodontoclasia will be more marked in the diabetic than in the normal individual. Periodontal pockets will be deeper and periodontal abscesses will be more apt to form. In order to bring out the relationship between the physician and dentist in the treatment of diabetes, I am going to point out certain precautions that should be taken before any dental surgery is attempted:

(1) The metabolic condition of the patient should

be appraised and controlled by a physician.

(2) Local anesthesia should be used although nitrous oxide oxygen is safe.

(3) Adrenalin should not be used because adrenalin is a direct antagonist of insulin and would raise the blood sugar.

(4) Because the diabetics are very prone to infections we should establish and maintain a chain of asepsis.

(5) We should avoid all unnecessary trauma because the diabetic heals very slowly and gangrene may result.

(6) In extensive dental operations the work should be done in several stages.

In addition to this it is the dentist's duty to inform the physician about any suspected diabetic case, whereas, on the other hand, it is the physician's duty to inform the dentist about such conditions. He should also caution the patient about the need for added dental attention. This is important. Good teeth are an asset to a diabetic because of the coarse diabetic food, while bad teeth are a liability since any form of infection makes diabetes worse. The first thing that we should do is extract all teeth which cannot be saved. The time for the extraction should be set by the physician. The best time for the extraction of teeth in diabetic cases is on the descending portion of the blood sugar curve. This will vary depending upon the type of insulin used, the time insulin is used, and the time relationship between the extractions and meals. The ideal time for the extraction of these teeth is one and a half hours to three hours after breakfast and after the administration of insulin. I have perhaps proven to your satisfaction that there is, or should be a direct relationship between the physician and dentist in the treatment of diabetes. We should have the same type of cooperation in many other pathological conditions. In recent years socially minded people are becoming more and more concerned about medical and dental practices as they are related to medical care. Among other things the microscope and microtome stimulated an awareness of the social and economic factors in health and disease which cannot be possibly analyzed by the sole application of these same instruments. These instruments and other instruments of precision do, in their limited mechanical way, focus the attention of the observer on a segmented microcosm. But human beings cannot be taken apart in such a way that each of the parts can be studied exclusively without regard for the other parts. Psychiatrists are well aware of this fact. Progress demands that the oral medical specialist become familiar with the progress of medicine. Progress demands that the oral medical specialist study the life giving and life saving devices which are being produced today at a more rapid rate than ever before. Progress demands that the other medical arts specialists learn something about dentistry and view the practice of medicine with the same spirit as the Mayo brothers. One of the Mayo brothers once had this to say, "80 per cent of all disease originates above the neck". There may be a tendency on the part of some people to ignore this statement, but it is a certainty that people engaged in the practice of the medical arts cannot afford to take any statement of the Mayo brothers of Rochester, Minnesota, too lightly. If we stop to analyze Dr. Mayo's statement, we can readily come to the conclusion that the chances are very great that this statement of Dr. Mayo's is a statement of pure simple fact. Let us pause for a moment to analyze Dr. Mayo's statement. First of all, we know that the seriousness of any disease caused by a specific micro-organism is dependent upon three factors: (1) The number of micro-organisms; (2) the virulence of the micro-organisms; and (3) the susceptibility of the hosts. The first two factors, the number of micro-organisms and the virulence of the micro-organisms, are self-explanatory. The third factor, the susceptibility of the hosts, is partly dependent upon one of two things: (1) the ease of invasion of micro-organisms, and (2) the difficulty of invasion of micro-organisms. In order to prove Dr. Mayo's statement, let us ask ourselves this question: "Where in the human body do we find the easiest entrance for the successful invasion of micro-organisms?" The answer is quite apparent. The oral cavity with its contained structures is in intimate relation with the external environment and, therefore, these structures are subjected to mechanical, chemical and bacterial insults which rarely, if ever, are experienced by other body cavities. This makes the oral cavity very vulnerable to disease. For this reason, the oral tissues are very sensitive indicators of the general health status of the individual and any changes in these oral tissues are often subclinical evidences of disease processes in other organs of the body.

Oral symptomatic manifestations of nutritional deficiencies, endocrine and gastrointestinal disturb-

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ances, certain of the anemias and blood dyscrasias are quite common.

The importance of the oral tissues as indicators of the general health status of the individual has not been sufficiently appreciated. The average physician has traditionally neglected not only his own mouth but also the mouths of his patients. The dentist is very often guilty of the former but rarely guilty of the latter.

This statement which I have just made in regard to the oral hygiene of the average physician is not original on my part but—strange as it may seem—is the statement of a very prominent physician. Perhaps I should say that it is the statement of a very prominent oral medical specialist. It is the statement of Lester W. Burket, M.D., D.D.S., Professor of Oral Medicine at the Thomas W. Evans Institute and Museums, School of Dentistry, University of Pennsylvania and Professor of Oral Medicine, Graduate School of Medicine, University of Pennsylvania.

All that I have said on medical-dental relations refers to what these relations were in the past and what they are to a great extent today.

What will be the medical-dental relationship in the future? In order to understand that question let us consider the general trends in medical-dental relationship today. In 1948 the American Medical Association and the American Dental Association appointed a joint committee to promote inter-relations of the two professions in education and practice. The Council on Education and Hospitals of the American Medical Association advocated the inclusion of dental departments in hospitals throughout the country, a measure which is supported and emphasized by the Commonwealth Fund in its report on hospital care. The Council on Education of the American Dental Association also supported the measure by setting up standards for hospital-dental internships and residencies. Part of the Commonwealth Fund report exhibited considerable foresight through a realization that circumstances would prevent the immediate application of the highest type of dental services in many instances because of budget situations and other obstacles. The Commonwealth Fund stated in its report: "Dental examinations, directed toward the discovery and diagnosis of dental and oral infections which may be related to systemic diseases should be made of all patients admitted to hospitals except when the physician in charge pronounces this procedure unnecessary or impractical."

In 1949 the Rhode Island medical and dental societies agreed that in many instances the joint services of the physician and dentist would hasten the recovery of patients and in some cases prolong life. These societies planned a state wide program of medical-dental relations. The principal points of their program were: (1) The establishment of closer geographic and intellectual relations between medical and dental schools so that under-graduate students as well as practitioners in both professions will have a better understanding of, and be more sympathetic to the problems of their allied practitioners; (2) the improvement of hospital dental departments so that they will be equal to the medical departments in teaching, research and services; (3) the development of courses of instruction for practicing physicians and dentists, these courses to be given under the joint auspices of the two societies and the extension division or medical sciences departments of a University or School of Liberal Arts; (4) provision by the medical and dental society of scientific programs on which dentists may collaborate with physicians in such fields as pediatrics, nutrition and cardiology in order that the dentists may acquire practical knowledge which will enable them to serve their patients more effectively; (5) publication in the journals of both professions of more material of common interest to members of both groups; (6) promotion of public health programs under the joint sponsorship of medical and dental societies.

The Rhode Island State Dental Society has entered the initial stage of the program by providing a course of lectures for physicians and dentists under the auspices of Brown University.

The writer can perhaps rapidly summarize everything which has been written in this article by merely stating that there is a great need for cooperation between the medical and dental professions and a great need for the education of these two professions in scientific matters which are common to both professions.

Before concluding this article, the writer wishes to state that he is indebted to E. M. Bluestone, M.D., of New York City, for part of his information and also to Lester W. Burket, M.D., D.D.S., of the University of Pennsylvania.

In conclusion, it would perhaps be appropriate to state that in the classics of literature we came across the phrase, "I came, I saw, I conquered". It would

be a splendid thing if at some future date, while thinking of the achievements of our own profession in matters concerning medical-dental relations, we could truthfully paraphrase this statement about such achievements: "You came, you saw, you conquered."

Bibliotheca Obstetrica

DENMAN, THOMAS (1733-1815)

AN account of an excrescence from the womb, attended with uncommon circumstances. Trans. Soc. for Improvement of Med. & Surg. V.3. p. 308 reprinted in "Diseases Peculiar to Women." London. 1849 by the Sydenham Society. p. 542.

Essay on the puerperal fever. ibid p. 43.

Aphorisms on the application and use of the forceps and vectis: on preternatural labours, on labours attended with hemorrhage, and with convulsions. 4th ed. London, 1793. Printed on one side of the page only, and may be a proof copy. No earlier edition is known.

A collection of engravings, tending to illustrate the generation and parturition of animals and of the human species. London. 1787. 29l., 15pl. 36.7cm.

An essay on uterine hemorrhages depending on pregnancy and parturition. London: 1775.

Introduction to the practice of midwifery. London: 1782.

The same. London: 1794.

The same. First American ed. Brattleborough, Vt., 1807.

Portrait painted by Abbot, engraved and published by W. Skelton, London, June 1, 1792.

Thomas Denman, the 2nd son of an apothecary, was born at Bakewell, June 27, 1733. His son, Thomas, became Lord Chief Justice of England. One of his twin daughters married Sir Richard Croft and the other Dr. Matthew Baillie.

When Denman was 21 years old he left home for the first time and came to London to study at St. George's Hospital. However, his money gave out in six months and he joined the Navy. After nine years he went back to the study of medicine. He set up practice at Winchester but met with no success. He removed to London but met with little success at first. On July 13, 1764, he obtained his M.D. degree at Aberdeen. After the publication of his Essay on Puerperal Fever, he received some recognition but still felt the need of serving as Surgeon to the "William and Mary" Yacht.

On the death of Dr. Cooper, Denman and Mr. Osborne bought Dr. Cooper's apparatus for £120, and began to lecture on midwifery. The lectures were a success. This was in 1770. Thirteen years later, when Dr. William Hunter died, he was the leading obstetrician in London.

According to Herbert Spencer, Denman's great reputation rests upon his "Aphorisms" and his "Introduction to the Practice of Midwifery". Spencer says that the 3rd edition of the latter "is perhaps the most splendid work on midwifery in the English language, whether regarded from the point of view of the format, paper, printing and illustrations of the work; the learning and knowledge it exhibits; or the ordered, lucid, and judicial manner in which that knowledge is presented."

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THE ROENTGEN DIAGNOSIS OF PRIMARY LUNG CANCER*

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and
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The purpose of this presentation is to evaluate the accuracy of the roentgenologist in the diagnosis of cancer of the lung. To this end, the roentgenograms and hospital records on the 160 pulmonary carcinomas diagnosed at the University of Virginia Hospital during the ten year period, July 1, 1939, to June 30, 1949, were reviewed and analyzed.

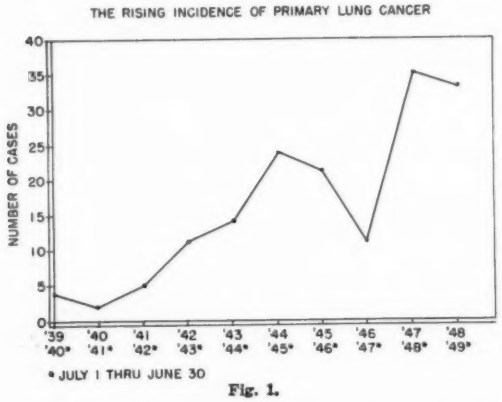

Fig. 1.

Figure 1 shows how the number of cases in this particular institution has increased in recent years. There is nothing unusual in this universal experience, which is certainly due in part to more accurate recognition and possibly in part to actual increase in the incidence of the disease. Carcinoma of the lung now constitutes about ten per cent of all malignancy and one per cent of all autopsy case material.

The distribution according to sex, age, and race, the symptomatology, location in the lungs, clinical course, and postoperative survivals are roughly the same as those reported in other series. These statistics are therefore omitted. In fact, the statistics in many of these same cases were published in February, 1949, by Camblos, White and Drash.

The pioneer work of Graham and Rienhoff in the development of total pneumonectomy was done in 1933. The technique was rapidly perfected and the operation soon became a standard part of the repertoire of all competent thoracic surgeons. For the first time, cancer of the lung could be cured. As with all cancers, cure could be obtained only if the disease was completely eradicated. That is, the surgical procedure had to be performed before malignant cells had escaped from the lung. This great advance placed a heavy burden on physicians responsible for diagnosing, or at least suspecting, the disease. Delay in recognition now could mean loss of a chance for cure. It is true that the mediastinal glands on the affected side can be extirpated (provided tumor has not broken through the capsule and invaded surrounding tissue). Also, as demonstrated by Ochsner, pneumonectomy plus resection of a portion of the homolateral diaphragm or chest wall is possible when exploration reveals limited invasion of the contiguous structure. However, these extensions of pneumonectomy have not appreciably lightened the burden of the diagnostician. It is still vital that he recognize, or suspect the presence of, lung cancer just as soon as possible, if the thoracic surgeon, at exploratory thoracotomy, is to find operable disease.

Unfortunately for the peace of mind of the physician and the health of his patients, cancers begin as microscopic, asymptomatic lesions and often disseminate cells *via* the lymph and blood channels or invade structures adjoining the organ of origin before producing symptomatic evidence of their presence. Cancer of the lung is no exception. Also, when a small, early cancer first produces symptoms, it naturally expresses its insidious development by the production of minimal, undramatic symptoms. Again, cancer of the lung is no exception. Cough is usually the first manifestation. Since almost every adult has either a chronic or an intermittent cough, the detection of the onset of the change in cough due to the growing tumor is very difficult for the victim, much less for the physician. When other symptoms are added, usually mild weight loss, chest pain, and

*Read at the annual meeting of the Medical Society of Virginia, at Fort Monroe, October 9-12, 1949.

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hemoptysis, the physician naturally becomes aroused, but, of course, in the meantime, the tumor has progressed considerably. Still, the only approach to pulmonary cancer is to maintain a high index of suspicion and to look carefully for the disease at the slightest excuse. As pneumonectomies are performed earlier and more frequently, the percentage of long term survivals can be expected to rise slowly.

To look carefully for the disease at the slightest excuse always involves a roentgen study of the chest. It is the rare cancer that does not produce some abnormality in a careful study while still in an operable stage. But as the internist faces the problem of recognizing a change in cough habit, so the roentgenologist faces a number of comparable difficulties.

As a matter of fact, the roentgenologist often does not see tumor shadow in his radiographs of a patient who has primary pulmonary cancer. Particularly in advanced cases, it is frequently the pneumonitis, atelectasis, emphysema, abscess, bronchiectasis, pleural thickening, or pleural effusion incited by the cancer which casts the abnormal shadows. Changes resulting from encroachment upon an air passage and from secondary infection readily mask the underlying tumor. In the 160 cases reviewed, routine chest roentgenograms revealed visible tumor in 113, or roughly 70 per cent. In the remaining 47 (roughly 30 per cent) tumor was completely obscured by secondary changes.

To turn to the 160 analyzed cases, these are the pathologically proven cases of pulmonary cancer which had chest roentgenograms interpreted before the correct diagnosis had been established. Cases referred with established diagnoses are not included. Only the interpretation of the first routine posterior-anterior and lateral radiographs has been considered. Where the correct diagnosis was established by subsequent special examination, unless the roentgenologist advised the additional study because he suspected pulmonary cancer from the original routine examination, he is credited with a missed diagnosis. Of course, in many instances, the X-ray report did not include a flat diagnosis of primary pulmonary cancer. Usually two or more possible diagnoses were considered, any of which could produce the findings in that particular chest; but if the roentgenologist recognized the possibility of cancer and so stated on his original report, he was credited with a correct diagnosis.

The roentgenologists' score is shown in Figure 2. A graph (Figure 3) of the percentage of accuracy

DIAGNOSTIC ACCURACY BY YEARS

Year	Total Cases	Correct Diagnosis	Missed Diagnosis
July 1, '39 - June 30, '40	4	2 (50%)	2 (50%)
July 1, '40 - June 30, '41	2	1 (50%)	1 (50%)
July 1, '41 - June 30, '42	5	5(100%)	0 (0%)
July 1, '42 - June 30, '43	11	5 (45%)	6 (55%)
July 1, '43 - June 30, '44	14	8 (57%)	6 (43%)
July 1, '44 - June 30, '45	24	15 (62%)	9 (38%)
July 1, '45 - June 30, '46	21	13 (62%)	8 (38%)
July 1, '46 - June 30, '47	11	8 (73%)	3 (27%)
July 1, '47 - June 30, '48	35	29 (83%)	6 (17%)
July 1, '48 - June 30, '49	33	28 (85%)	5 (15%)
	160	114 (71%)	46 (29%)

Fig. 2.

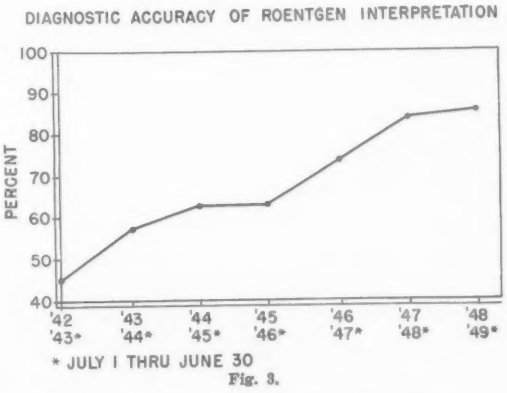

Fig. 3.

during the past seven years, when the number of cases was significantly large, shows an improvement from a rather shocking 45 per cent to a respectable 85 per cent. The improvement reflects greater awareness of the disease which experience brings. The lack of greater improvement indicates the inherent difficulties in recognition of bronchogenic carcinoma. In most cases recorded here as missed diagnoses, the chest X-rays actually were correctly interpreted in that an infiltrate, abscess, atelectasis, bronchiectasis, pneumonitis, or pleurisy was described and reported. But the possibility that the changes were due to an underlying partially or completely obscured lung cancer was not suggested. Fortunately, in most instances, other evidence or the clinical course did suggest the real trouble, and further roentgen studies, smears of sputum or pleural fluid, and bronchoscopy resulted in either a positive diagnosis of inoperable lung cancer or exploratory thoracotomy.

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Subject to the inevitable exceptions which no biological classification can escape, pulmonary carcinoma produces roentgen findings which fall under one or a combination of several of the headings listed in Figure 4. This chart analyzes the roentgenologic

ANALYSIS OF DIAGNOSTIC ACCURACY OF PREDOMINANT X-RAY FINDINGS

Predominant Finding	Total Cases	Correct Diagnosis	Missed Diagnosis
1. No X-ray change	1	0	1
2. Hilar shadow alone	36	33	3
3. Peripheral shadow	24	16	8
4. Extreme apical shadow (Pancoast)	1	1	0
5. Diffuse infiltration	2	2	0
6. Abscess	10	9	1
7. Bronchial obstruction	67	41	26
a. Obstructive emphysema 1 b. Atelectasis 25 c. Bronchiectasis or multiple small abscesses 15 d. Drowned lung (atelectasis and excess fluid) 26			
8. Primary with metastases to nodes, lung, pleura, or rib	11	9	2
9. Pleural thickening and fluid obscuring a hemithorax	8	3	5
	160	114(71%)	46(29%)

Fig. 4.

findings in the 160 cases. Where several features were present in one case, it was listed under the most obviously demonstrated abnormality. When one notes where the diagnostic failures occurred, the obstacles to immedite recognition of pulmonary cancer by X-ray are at once obvious.

To comment briefly on each category:

1. In this lone case, a very small bronchogenic carcinoma was discovered at autopsy. Death was due to unrelated causes, but chest radiographs failed to show any evidence of the presence of cancer. Obviously, pulmonary cancer remains invisible until it is of sufficient bulk to produce a demonstrable shadow or until it causes partial obstruction of an air passage or until it has set up a secondary infection. Nevertheless, a demonstrable roentgen change can be counted on to appear before the cancer has advanced beyond an operable stage.

2. In the group where a hilar shadow was the predominant finding (Figure 5), the roentgenologists were prompt in suspecting lung cancer. This is encouraging, for most of the tumors in this group were early, operable lesions. They had not yet obstructed an air passage or caused secondary infection. Yet seldom could a flat diagnosis be given with confidence because other conditions may produce identical findings (Figure 5).

3. In the peripheral carcinomas, the roentgenologist faces serious difficulty.

When the cancer is infiltrating, the blocking of small air passages, the superimposition of pneumonitis and atelectasis combine to produce an X-ray appearance which cannot be distinguished from tuberculosis or pneumonia (Figure 6). The roentgenologist must learn always to think of cancer when he encounters a peripheral infiltration. He must carefully analyze the composition of the shadow, attempting to define a heavily obscured underlying area of greater density. He must continually remind

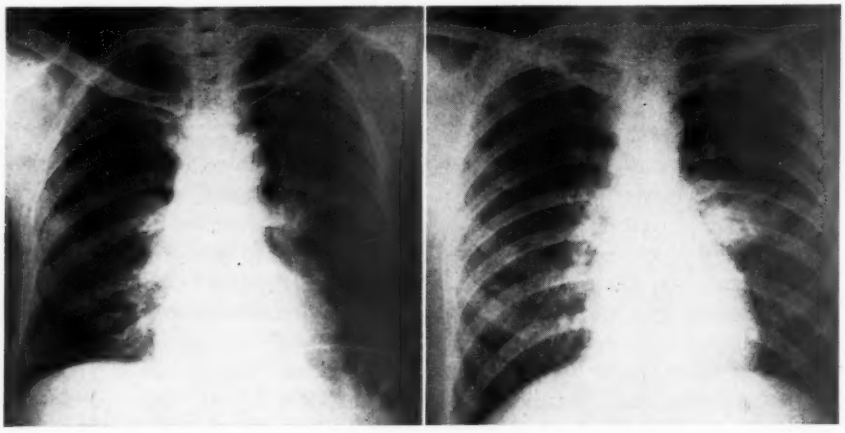

Fig. 5. A—A small hilar bronchogenic carcinoma on the left with minimal infiltration and atelectasis.

B—Hilar tuberculosis on the left. There is no possibility of making the differential diagnosis roentgenologically when lesions of this type are encountered.

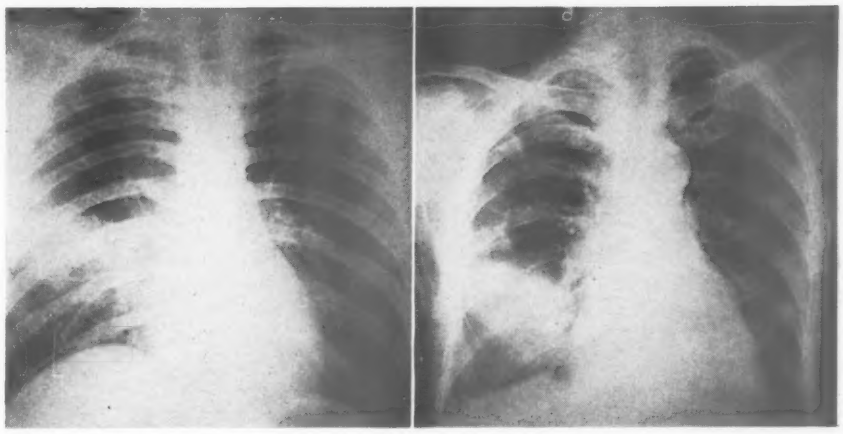

Fig. 6. A—Right middle lobe pneumonia. B—Right middle lobe bronchogenic carcinoma with drowned lung obscuring tne tumor. Radiological differentiation cannot be made.

the internist that, when the initial impression is tuberculosis, if the sputum is negative for tubercle bacilli, cancer must at once become the leading consideration. When pneumonia is the initial impression, the roentgenologist must insist on closely spaced serial X-ray studies. If resolution is not prompt, again cancer becomes the foremost consideration. As the pneumonitis responds to treatment, the tumor shadow frequently emerges more distinctly. At any rate, no pneumonia should be dismissed from observation until the chest is clear roentgenologically. Clinical and physical findings cannot be relied upon. Many patients with inoperable carcinoma give a history of repeated attacks of pneumonia. The underlying cause of the infection must be discovered during the first episode if the maximum chance of cure is to be attained. Also, it must be remembered that tuberculosis and cancer can occur together. A peculiar looking tuberculous lesion or one that does not respond rapidly to treatment should be suspected and investigated.

If these precepts are rigidly followed, though carcinoma will often not be the initial impression, the true situation will be suspected within a few days or, at most, a few weeks, so that a chance for cure will not be lost.

When a peripheral cancer casts a discrete shadow, it is readily confused with benign tumor or solitary metastasis.

4. The Pancoast type of apical pulmonary cancer has been so heavily emphasized that, though infrequently encountered, it is not apt to be missed. Though it produces recognizable X-ray findings, it invades pleura and ribs early.

5. The diffusely infiltrating carcinomas are indistinguishable from metastases. Their recognition is, unfortunately, a matter of academic interest only.

6. A fairly common type of pulmonary cancer is the solid mass, the growth of which has been so rapid that the center of the tumor is insufficiently vascularized. Central necrosis follows. With the establishment of bronchial drainage, the X-ray appearance is that of abscess. The tumor wall is usually thicker than the inflammatory wall of a pyogenic abscess and the interior of the tumor wall may be nodular. Since there is no infallible way of distinguishing, a necrotic cancer should be considered whenever a pulmonary abscess is discovered. For example, the thick walled lesion with a nodular interior in Figure 7 proved to be a pyogenic abscess, while the smooth thin-walled lesion is a carcinoma.

7. In the group of lung cancers whose outstanding feature is bronchial obstruction, the roentgenologist faces his most frequent and most difficult task.

(a) At an early stage of its development, the presumption is that every cancer with intrabronchial tumefaction produces partial obstruction resulting in obstructive emphysema. Because this is a phenomenon of early obstruction, it is seldom seen and probably occurs often before the tumor shadow itself can be demonstrated. Demonstration of obstructive emphysema is not pathognomonic of cancer. It simply

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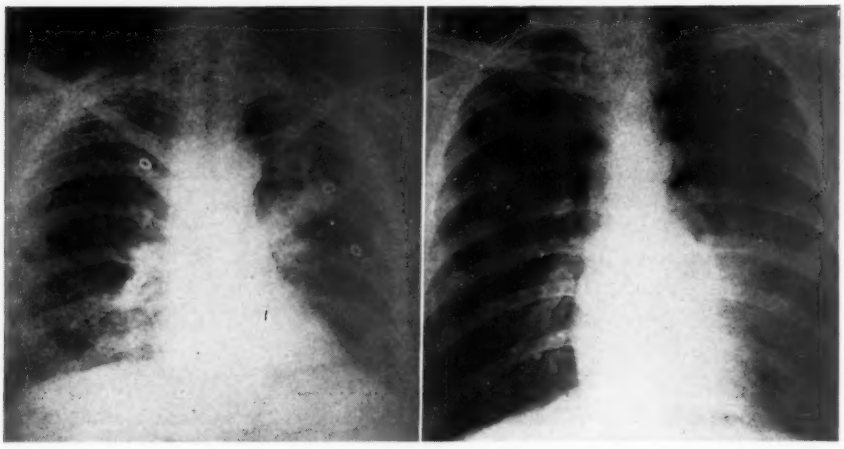

Fig. 7. A—A thick-walled cavity with nodular interior in the left upper lobe. Usually cavities of this type are due to necrosis in a pulmonary tumor. In this instance, the lesion represents a pyogenic abscess.

B—A very thin-walled cavity with perfectly smooth interior. This represented a bronchogenic carcinoma with central necrosis.

indicates that the bronchus is partially occluded. Foreign body, stricture, benign tumor, and malignant tumor are to be considered. But whenever obstructive emphysema is encountered, primary lung cancer must be considered.

(b) As obstruction becomes complete, atelectasis inevitably follows. In those cases in which the tumor shadow can be seen, the correct diagnosis is usually suspected, though benign glandular enlargement cannot be ruled out. But often the dense shadow of the atelectatic lung completely obscures the tumor on routine roentgenograms. In these cases, though the atelectasis is fully and accurately reported, the roentgenologist has not done justice to his patient when he fails to bring up the possibility of underlying cancer at the start of the investigation. Yet simply routinely to list primary pulmonary carcinoma as a possibility wherever atelectasis is encountered is not wholly desirable. The referring physicians soon ignore a too often repeated warning. The clinical findings must be carefully evaluated in consultation with the referring physician. A wise decision as to the next steps to be taken can be reached. This is much better than simply listing cancer routinely as a diagnostic possibility.

(c) Bronchiectasis and multiple abscesses are a still later result of bronchial obstruction. Their presence is even more apt to hide the underlying cancer on routine chest study (Figure 8). Everything said about atelectasis applies here, too.

(d) The presence of drowned lung—partial atelectasis and congestion by excess fluid, with or without secondary pneumonitis—is still more apt to hide the underlying carcinoma. The most frequent error of the roentgenologist is to diagnose pneumonia; of the internist, to omit serial X-ray studies because of clinical response to treatment for pneumonia. Again, consultation, a joint discussion is far more apt to lead to correct handling of the patient than is the routine listing of cancer as a diagnostic possibility.

Though it is impossible to avoid errors in judgment, particularly in the group under discussion, by constantly keeping cancer in mind and by considered consultation, it should be possible to arrive at the true diagnosis without a dangerously prolonged delay. Additional and special X-ray studies, Papanicolaou smears, bronchoscopy, bronchography and exploratory thoracotomy should be used freely. There is one relaxing feature of the problem. In those unfortunates whose secondary changes are more advanced, making detection of the cancer more difficult, the cancer is apt to be inoperable, so that failure of prompt recognition is less important.

8. In this group, correct diagnosis is seldom of practical value. When metastasis is confined to the homolateral lung or to a very restricted portion of the homolateral thoracic cage, surgery may still be possible. When the diagnosis is missed, the error usually consists in reporting metastases only, without recognizing the primary pulmonary lesion, a natural and

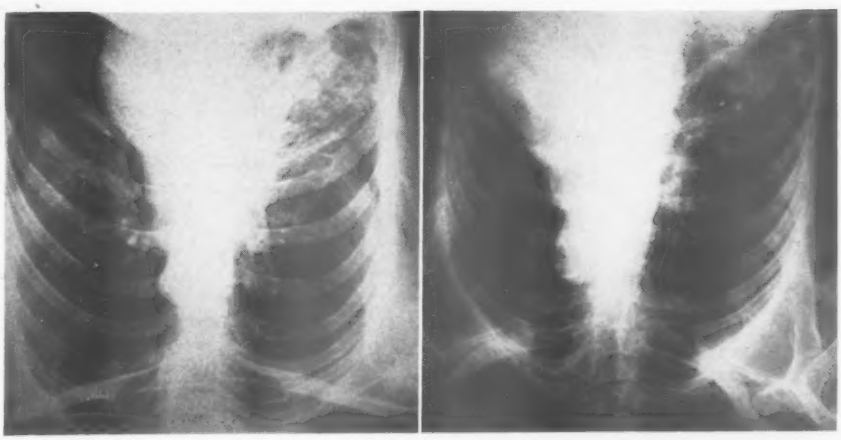

Fig. 8. A—Bronchiectasis in the right lower lobe. B—Bronchiectasis in the right lower lobe secondary to a broncho-genic carcinoma, partially occluding the main stem bronchus. Note that the secondary changes completely obscure the tumor.

usually harmless error.

9. These patients are inoperable, and correct diagnosis is relatively unimportant. With complete obscuration of the thorax, recognition of the cancer is obviously impossible until study of the fluid or X-ray examination after removal of the fluid is carried out.

CONCLUSION

1. An analysis of the interpretation of initial routine chest X-rays in 160 cases of primary pulmonary carcinoma has been presented.

2. The diagnostic accuracy has increased in proportion to the rising incidence of the disease and to the experience of the roentgenologists.

3. When the diagnosis was missed, it was usually because secondary changes obscured the underlying tumor. Atelectasis, bronchiectasis, etc., were correctly reported. But failure to suspect the underlying tumor is just as grave an error as an outright misinterpretation.

4. Fortunately, it was generally true that the most completely obscured cancers were advanced, inoperable lesions. The earlier ones, with less severe secondary changes, were much more readily suspected.

5. The referring physician must realize that the prompt recognition of primary lung cancer is a difficult roentgenologic achievement. Only by actual consultation and discussion, with joint planning of further studies, will the best interests of the patient be served.

6. Primary lung cancer can be diagnosed positively only by the pathologist. Often the presumptive diagnosis can be made by the roentgenologist and usually he can at least include it among several tentative diagnoses. Because the pathological processes set up by a lung cancer cast X-ray shadows similar or identical to the shadows produced by many other conditions, the roentgenologist will frequently cause false alarms by suggesting the possibility of cancer where none exists. He will inevitably fail to suspect the presence of some.

7. It is the responsibility of the roentgenologist to keep the diagnosis ever before him. He can reduce the number of early cases which he misses, even on initial study, to a small figure.

BIBLIOGRAPHY

1. Camblos, J., White, M. L., Jr., and Drash, E. C.: Bronchiogenic Carcinoma—A Study of 115 Cases from January, 1940, to January, 1948. *Southern Surgeon* **XV**:102-110 (February), 1949.
2. Ochsner, A., Debakey, M. E., and Dixon, L.: Primary Pulmonary Malignancy Treated by Resection—Analysis of 129 Cases. *Ann. Surg.* **125**:522-540 (May), 1947.
3. Rienhoff, W. F., Jr.: The Present Status of the Surgical Treatment of Carcinoma of the Lung. *Ann. Surg.* **125**:541-565 (May), 1947.

DISCUSSION

DR. FRANK PHILIP COLEMAN, Richmond: Doctors Cooper and Kroll's analysis of 160 primary carcinomas of the lung emphasizes the diagnostic importance of roent-

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genography. Their ability to make a correct presumptive diagnosis in 85 per cent of all patients with lung cancer is extremely gratifying and should lead to more frequent diagnosis of the disease in an operable and curable stage. The radiologic features have been admirably presented and illustrated by the authors; therefore, I shall confine my remarks to symptoms, supplementary diagnostic measures, and results of treatment in a series of cases.

What pulmonary symptoms or signs indicate referral of patients to the roentgenologist? Cough, pain in the chest and hemoptysis, alone or in combination, are the most common symptoms produced by lung cancer. Approximately 90 per cent of the patients will exhibit cough or a change in the cough-habit as the initial symptom. Pain may vary in intensity from a "heavy feeling" in the chest to that of severe and intractable pain associated with osseous or brachial plexus extension of the cancer. The pain may be fleeting in character but it has a tendency to persist and recur. Hemoptysis in the cancer age group immediately raises the question of lung cancer. Physical signs of atelectasis, persistent pneumonic signs, atypical behavior of any pulmonary infection, and localized asthmatic wheezes require roentgenograms and suitable follow-up roentgen studies. Since a presumptive diagnosis of lung cancer can be established in a high percentage of cases in the first roentgenogram, the liberal referral of all patients with pulmonary complaints to the roentgenologist is indicated if progress is to be made in the treatment of this disease.

Mass chest x-ray surveys in schools, industries, Government, and Armed Forces Induction Centers have revealed lung tumors in many asymptomatic individuals. These studies directed to the detection of pulmonary tuberculosis account for frequent early diagnosis of cancer of the lung.

Although the roentgenogram leads to a high percentage of correct presumptive diagnosis of lung cancer, a positive diagnosis can be established only by obtaining tissue for microscopic examination. In a series of 117 consecutive private patients and an additional 45 patients from the Thoracic Surgery Service, McGuire Veterans Hospital, the presumptive x-ray and clinical diagnosis of lung cancer was confirmed by various methods (*Table 1*).

TABLE 1—METHODS OF DIAGNOSIS 162 CASES CARCINOMA LUNG.

	CASES
Bronchoscopy	75
Thoracotomy-Exploratory	45
Papanicolaou Stain	2
Biopsy Extrathoracic Lymph Node Extension	11
Craniotomy-Unsuspected Brain Metastasis	3
Biopsy Chest Wall	2
Punch or Aspiration Biopsy	4
Tumor Cells Pleural Effusion	4
Biopsy Wall Peripheral Lung Abscess	3
Thoracoscopy-Biopsy	1
Autopsy	12

All the methods of tissue diagnosis of lung cancer, excluding the first three procedures (Table 1), usually contraindicate curative surgery.

Although reported statistics indicate improvement in operability and resectability rates during the past ten years, there is still an urgent need for diagnosis of this disease in its early stages. One of every 4 patients referred to the thoracic surgeon has a chance of cure by removal of the lung (*Table 2*).

TABLE 2—RESULTS IN 162 PROVED CASES CANCER LUNG

	CASES	PER CENT
Inoperable	66	40.8
Operable-Thoracotomy	96	59.2
A. Thoracotomy Only	39	
(Resection Contraindicated)		
B. Resection Feasible	57	
1. Lobectomy-Paliative	4	
2. Pneumonectomy	53	

A positive preoperative pathologic diagnosis of lung cancer was obtained in only 53 per cent of the cases subjected to pulmonary resection (*Table 3*).

TABLE 3—METHODS OF CONFIRMING THE CLINICAL DIAGNOSIS IN 57 CASES OF CANCER LUNG SUBJECTED TO RESECTION

	CASES
Bronchoscopy—Positive	28
Exploratory Thoracotomy	27
Biopsy Wall of Peripheral Lung Abscess	2

Forty-five patients without preoperative positive tissue diagnosis who showed clinical or roentgenographic evidence of lung cancer were subjected to exploratory thoracotomy. Of this group, 27 were found suitable for resection of the lung, whereas only 28 of the 75 cases with preoperative positive bronchoscopic biopsies were suitable for excisional surgery. This emphasizes the importance of exploratory thoracotomy where a presumptive diagnosis of cancer cannot be pursued to a morphologic answer and it further suggests that patients requiring thoracotomy for diagnosis have the best prognosis.

Of the 117 cases of lung cancer previously mentioned, 32 were subjected to pneumonectomy and 2 to palliative lobectomy. Twenty-two per cent of the patients surviving total pneumonectomy are living and well for a period of five years or longer (*Table 4*).

TABLE 4—RESULTS IN RESECTION 34 CASES CARCINOMA LUNG

	CASES	PER CENT
Resections (2 Palliative Lobectomies)	34	--
Hospital Deaths	5	14
Deaths Later	15	--
Living With Recurrence	1	--
Living and Well	13	--
A. Over 5 Years	6	22

I want to thank Doctors Cooper and Kroll for a most interesting presentation and for the privilege of discussing their paper.

THE MANAGEMENT OF PRIMARY GLAUCOMA*

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The management of primary glaucoma is probably one of the most difficult problems that confronts the ophthalmologist in daily practice; however, it is certainly one of the most fascinating problems and presents us with possibly our greatest challenge. The condition of glaucoma has been recognized almost since the earliest recorded days of medical history and yet it was considered a hopeless affliction until 1856, less than one hundred years ago, when von Graefe[1] first employed iridectomy and reported on the successful treatment of certain cases of glaucoma by this means. The next great step forward was made by Laqueur[2] who, in 1875, found that physostigmine lowered the tension in glaucomatous eyes. Since that time a number of other important advances have been made in the treatment of the condition; yet, today, almost a hundred years after von Graefe, the management of glaucoma remains a vexatious problem in many instances.

CLASSIFICATION

The classification of glaucoma which all of us learned during medical school and post-graduate study is:

I. Chronic simple (noncongestive, compensated).
II. Acute congestive (incompensated).
III. Chronic congestive (incompensated).
IV. Absolute.

This classification holds that all forms of primary glaucoma are the same disease process, differing from one another only in the stage and severity of the condition. This conception was outmoded by the work of Rosengren[3] who showed that all cases of primary glaucoma fell into two easily separated groups, those in which the angle of the anterior chamber is narrow, and those in which the angle is wide and the chamber of normal depth.

All of the congestive cases belong to the narrow chamber angle group and usually the unaffected eyes of these patients also have narrow angles. This may mean that these cases have congenitally narrow angles, which predispose them to the disease, or that the narrow angle in the preglaucomatous eye is the pathologic result of previous subclinical attacks of glaucoma. There are also some narrow angle glaucomas of the noncongestive type, and in these there is no history of haloes, pain, or blurring of vision. Histologically it has been shown that shortly after the onset of an acute attack there is edema of the ciliary body which is sufficient to push the root of the iris forward and obstruct the chamber angle. Friedenwald[4] holds that the primary local lesion in these cases is in the ciliary body. The vasomotor disturbance in the ciliary body in these cases does not cause any recognizable symptoms until the chamber angle has become at least partially obstructed, but each succeeding vasomotor attack leaves an increasing number of anterior peripheral synechiae. While the cause of these vasomotor attacks is not known, it is thought that emotional stresses may play a large part in initiating them.

In primary narrow angle glaucoma there are progressive phases observed in the condition. In the early stages the attacks, if not severe, may not do much damage to the pressure control mechanism in the eye, and the intraocular pressure may return to normal between attacks. When the condition is more advanced the pressure does not return to normal between attacks and the disease has then become chronic. In the third phase we find the severe attacks which are incompletely resolved and the condition has passed into the chronic congestive phase. The end stage in uncontrolled cases is absolute glaucoma.

Primary wide chamber angle glaucoma comprises almost all of the cases formerly classified as chronic noncongestive glaucoma or glaucoma simplex. Very few cases of this condition have been studied pathologically but from those that have been sectioned it would appear that the secretory mechanism of the ciliary body is not at fault in this type of glaucoma but that the cause must be sought in the drainage

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*Read in part at the annual meeting of the Virginia Society of Ophthalmology and Oto-Laryngology, Richmond, May 10, 1949, and as a lecture at the annual post-graduate course in Ophthalmology, University of Rochester, School of Medicine and Dentistry, in Rochester, New York, July 27, 1949.

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apparatus. Friedenwald[4] has suggested that sclerosis of the afferent arterioles of Schlemm's canal might be the cause of the glaucomatous process. Other workers, particularly Otto Barkan,[5] have in recent years called attention to the fact that in wide chamber angle glaucoma the corneo-scleral trabeculae between Schlemm's canal and the anterior chamber contain large amounts of melanin pigment in many cases. It has been held that this melanin clogged in the spaces between the trabeculae may be the cause of the glaucoma, but other authors believe that the deposition of melanin in this location is a complication, rather than a cause, of the glaucoma. It is seen, therefore, that the etiology of wide chamber angle glaucoma is, at this time, somewhat obscure. However, it should be remembered that hypotony from penetrating surgery can cause an edema of the ciliary body and convert the condition into a narrow chamber angle glaucoma. Two rather rare subtypes of wide chamber angle glaucoma are the cases which show an extension of the endothelium around the chamber angle on to the iris, and the cases of glaucoma capsulare which are secondary to exfoliation of the lens capsule.

It is not the function of the writer to go into the diagnosis of primary glaucoma; however, it would seem well to mention a few of the more important diagnostic points. Careful tension curves are invaluable aids in the diagnosis and management of primary glaucoma. These should include 24 or 48 hour curves and also curves plotted over a period of time so that the base pressure and the peak pressures may be properly evaluated, as has been pointed out by Algernon Reese.[6] The accurate plotting of visual fields, both peripheral and central, over a period of months or years gives us definite information as to the efficacy of the treatment and the need for further therapy. The examination of the anterior chamber with the slit lamp and the gonioscope should tell us with which type of glaucoma we are dealing. A careful fundus study frequently gives the first clue that we are dealing with glaucoma and probably the first ophthalmoscopic change to be noted is a recession of the lamina with a change in the size and shape of the physiologic excavation followed by a change in the course of the vessels on the disk. Various provocative tests may be helpful in the diagnosis of glaucoma and, last, but by no means least, a careful history should be obtained in each case, laying particular stress on pain, blurring of vision, haloes, and the family history of eye disease of any kind.

MEDICAL TREATMENT

An understanding of the intraocular musculature is essential but time does not allow a full discussion of this in this paper. The sphincter pupillae runs as a band, less than a millimeter wide, around the pupillary border of the iris. The dilator muscle extends as a thin sheet between the pigment layer of the iris and the stroma, running from the root of the iris and ciliary body to the pupillary border. The main interest of the ciliary muscle in the medical treatment of glaucoma lies in its attachment to the scleral spur. Through this insertion it is believed that the ciliary muscle exerts a pumping action upon the canal of Schlemm and through its contraction tends to hold the canal open.

The ciliary muscle and the sphincter pupillae are innervated by the parasympathetic nervous system and the dilator pupillae by the sympathetic system. The terminal synapse for the parasympathetic fibres lies in the ciliary ganglion and that for the sympathetic fibres in the superior cervical sympathetic ganglion.

The neurohumoral theory of transmission of impulses has been fairly well established by the work of Loewi, Dale, and others.[7] This theory postulates that impulses are transmitted from one nerve fibre to another and finally to the effector organ through the action of a chemical substance called an effector substance. This is liberated at the nerve endings upon the arrival of a nerve impulse. This substance then initiates a similar impulse in the next nerve cell in the pathway. An antagonistic substance is constantly present in the tissues which rapidly destroys the effector substance, thus permitting only momentary stimulation of the next nerve cell in the chain. It has been demonstrated that the effector substance throughout the nervous system is acetylcholine. The main action of acetylcholine with which we are here concerned is the activation of structures supplied by the postganglionic fibres of the parasympathetic nervous system. The antagonistic substance to acetylcholine is cholinesterase. Organs supplied by the sympathetic system are activated by the liberation of an adrenalin-like substance at the nerve endings called sympathin. The

chief antagonistic substance to sympathin is amine oxidase.

In considering the medical treatment of glaucoma we are primarily concerned with those drugs which stimulate or depress the postganglionic parasympathetic fibres. However, those substances which stimulate the sympathetic system (sympathomimetic substances) do play a part, although it is somewhat less important than the parasympathomimetic substances. The substances of each group act either by inactivating cholinesterase or amine oxidase, thus allowing acetylcholine or sympathin to accumulate in high concentrations, or by acting on the motor end plate directly as do acetylcholine and sympathin.

Parasympathomimetic (Excitatory) Drugs. These are divided into two classes, the anticholinesterase drugs and agents stimulating the motor end plates. In the first class are found physostigmine (erserine), prostigmine, and DFP (di-isopropyl fluorophosphate), while in the second group are drugs which are derivatives of, or similar in action to, acetylcholine in their effect on the motor end plate but are sufficiently resistant to destruction by cholinesterase to reach the iris in sufficient concentration to cause miosis. Under this latter classification are found mecholyl, doryl, pilocarpine, and furmethide.

Parasympatholytic (Depressor) Drugs. These substances are alkaloids obtained from belladonna or are chemically related to them. This group consists of atropine, scopolamine, homatropine and euphthalmine.

Sympathomimetic Drugs. These are divided into two groups, the anti-oxidase drugs which protect sympathin, such as cocaine, and agents which stimulate the motor end plate, such as epinephrin, neosynephrin and paredrine.

Narrow Angle Glaucoma

This condition is characterized by rapid rises in tension associated with transient blurring of vision due to corneal edema and this may vary all the way to complete loss of vision, intense pain in the eye and temple, nausea and vomiting. After the disease has become well established there may be sufficient rise in base pressure to cause visual field defects. During the acute phase the main problem of the ophthalmologist is the rapid reduction of tension by whatever means seems most feasible. I feel that these cases are more easily handled if the tension can be reduced by medical means rather than operating when the eye is at its peak tension. Therefore miotics should first be used rather heroically and they should be given in synergistic combinations. Of the parasympathomimetic drugs it has been shown that certain miotics are effective by inhibiting the action of cholinesterase, thus allowing the acetylcholine in the tissues to stimulate the motor end plate and produce miosis, while the other group simulate the action of acetylcholine by direct action upon the motor end plate. In the first group we find eserine, physostigmine and DFP. Leopold and Comroe,[8] Dunphy,[9] and Sallman[10] have shown that DFP may precipitate an attack of acute glaucoma because of the congestion of the ciliary body which it produces and therefore its use in the narrow angle glaucoma cases is not advised. In the second group of miotics, those which simulate the action of acetylcholine, we have pilocarpine, mecholyl, doryl (carcholin), and furmethide. Probably the most widely accepted medical treatment of the acute attack of narrow angle glaucoma combines the use of 1% eserine or 5% prostigmine with 2% pilocarpine, 1.5% doryl, or 10% furmethide. These drops are used alternately every ten minutes for two hours and during this period attention should be paid to the discomfort of the patient, for, while he was probably in pain from the glaucoma itself, his pain will certainly be increased by the use of the miotics as the ciliary spasm which they produce may be intense. After the two hour period has passed the drugs being used may then be given at hourly intervals. Other measures which may be tried are the use of retrobulbar injections of procaine and adrenalin, as reported by Gifford[11] in 1934, and the administration of hypertonic solutions of glucose intravenously to lower the intraocular tension through the osmotic attraction of fluid from the eye into the blood vessels, as advocated by Sansum[12] in 1917. In the event that the tension is not lowered within twelve hours after the attack has started surgery should be resorted to if at all feasible in order to prevent the formation of peripheral anterior synechiae.

In the event that the patient will not consent to surgery or for some reason surgery has to be postponed, the patient should be continued on a miotic regime in the interval between acute attacks. Narrow angle glaucoma, in the interval between attacks, usually responds more readily to weak miotics than

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does the wide angle glaucoma. Therefore, it would seem preferable to continue the use of a weak miotic as infrequently as may be necessary to maintain miosis and normal tension. This will usually be at least twice daily of a miotic such as 1% pilocarpine, and the patient should always be instructed to use his drops the first thing in the morning and the last thing at night. Furthermore, occupational or recreational hazards such as working in a photographic dark room or attendance at motion pictures should be preceded by the instillation of a drop of whatever miotic is being used.

Chronic Narrow Angle Glaucoma

This includes two groups of eyes, the first of which shows chronic or recurrent congestive symptoms, while the second group has all the characteristics of wide angle glaucoma in spite of having narrow angles. This second group may follow one of three courses:

1. The angle may remain open and no sign of glaucoma may develop. 2. They may develop wide angle glaucoma due to whatever mechanism causes this condition. 3. They may develop typical acute congestive glaucoma.

Wide Angle Glaucoma

In this condition the diagnosis is perhaps more difficult than in the glaucomas which show congestive signs. Most frequently the personal history of the patient is entirely negative, the patient having consulted the ophthalmologist merely for a routine check-up. The most important point in the diagnosis is tonometry, not alone the digital method but with an accurately calibrated tonometer. More and more it is becoming standard procedure to take the tension with a tonometer on all patients over the age of 35.

We may suspect glaucoma in many patients because of the ophthalmoscopic appearance of the disk or because of changes in the visual fields, but at the time we see a particular patient the tension may be quite within normal limits. In this case repeated tension checks should be done at different hours of the day. In some cases it is necessary for the patient to be hospitalized so that a tension curve may be run over a period of 24 or 48 hours, for it is a well recognized fact that in glaucoma the tension tends to be highest during the early morning hours. Again, the tension curve should be run over some period of time, usually months, so that the base and peak pressures may be accurately determined.

In the diagnosis of wide angle glaucoma the visual fields may be helpful, although in the early stages the changes are frequently so slight that they are not picked up in routine field studies.

Various provocative tests may be of value in wide angle glaucoma and while some of them may dilate the pupil and block the angle even more, occasionally sending the tension to high levels, I feel they are justified under controlled conditions. The patient should know that a provocative test is being done and should realize that immediate surgery may be necessary, in case the rising tension is unable to be controlled by medical means.

In the medical treatment of wide angle glaucoma education of the patient is of primary importance. He should be taught to use his drops at the same time every day, precisely as ordered by his ophthalmologist, and should be cautioned never to run out of drops. It is wise to warn these patients of the symptoms of a rise in intraocular tension such as pain, blurring of vision, and haloes, and caution them to consult the ophthalmologist as soon as one of these symptoms appears. The patient should be further cautioned to return for check-up at the appointed times and not to let these appointments slide by.

The use of miotics in wide angle glaucoma should be limited to the weakest solution which will produce miosis and maintain the tension at normal levels with the fewest number of doses during the course of twenty-four hours. This means that the patient will have to be seen a number of times during the first few weeks while the tension is being stabilized. The degree of miosis and the state of the tension will furnish clues as to the effectiveness of the miotic being used. If the miosis is marked and the tension still elevated then it is hardly probable that stronger miotics will reduce the tension. However, if the pupil does not show much constriction and the tension remains elevated then it is possible that stronger miotics will reduce the tension.

Pilocarpine is the drug most frequently used in the medical treatment of glaucoma. If the tension is only slightly elevated, then a ½% solution of pilocarpine may be prescribed for twice daily instillation. However, if the glaucoma is more severe with an initial tension over 30 mm. Hg. Schiotz,

then a 1% solution should be ordered. If a 2% solution of pilocarpine fails to control the tension, then surgery should be considered.

Eserine is a very effective miotic agent but there is a tendency to develop an allergy to the drug when it is used over long periods, and therefore it is best not to use it by itself in wide angle glaucoma over any length of time. However, it may be used in combination with pilocarpine in strengths of ⅛ to ¼% without much danger of sensitivity developing.

Prostigmine acts like eserine in inactivating cholinesterase and is usually used in 5% solution in combination with other drugs. This drug is less likely to cause allergic phenomenon in the eye than eserine.

Doryl acts directly on the motor end plate. It resists destruction by cholinesterase and Van Dyke[13] has shown that it acts as an inhibitor of this substance. O'Brien and Swan[14] state that a 1.5% solution gives more prolonged miosis and is more effective than 2% pilocarpine. It may be used for patients who do not respond to pilocarpine or who have developed a resistance to pilocarpine.

Furmethide is about equal in strength to doryl. It also stimulates the motor end plate of the muscle cell and is resistant to destruction by cholinesterase. Owens and Woods[15] believe that it reduces the tension in glaucoma in many cases where other drugs fail. Tolerance to the drug can develop and allergy can occur.

DFP (di-isopropyl fluorophosphate) is the strongest miotic available for the treatment of glaucoma. As has already been stated, there is some danger in using it in narrow angle glaucoma because of the congestion of the ciliary body which it produces. However, there are no similar contraindications to its use in wide angle glaucoma. It has a prolonged action and can be used at intervals of once a day to as long as once a week in mild cases of glaucoma. It often lowers the tension where other miotics fail. There are several disadvantages to the use of the drug. Many patients complain of blurring of vision and pain as a result of iris and ciliary body spasm. In some cases there may be circumcorneal injection. Leopold and Comroe[8] and Dunphy[9] reported several cases of acute rises in tension following the use of DFP. When the drug is used it should be instilled in from .035% to 0.1% solution.

THE SURGICAL TREATMENT OF PRIMARY GLAUCOMA

In the surgical treatment of any type of glaucoma it should be recognized that we are attempting to permanently lower the intraocular tension after the use of miotics has failed to do so. The most commonly used surgical procedures involve the formation of a filtering cicatrix, and of utmost importance in this is the establishment of an endothelial lined tract.

In considering the most commonly used filtering operations it is well to consider both the advantages and disadvantages of each.

Iridencleisis. During recent years this operation, first described by Holth,[16] has made a well deserved comeback in popularity. Some years ago many ophthalmologists, among whom the writer is included, felt that iridencleisis was not a good surgical procedure because of the deliberate inclusion of the iris in the scleral wound, while in other surgical procedures, such as cataract, we shunned iris prolapse as we would the plague. Perhaps iridencleisis is not a good surgical procedure but the answer seems to be that it works well in permanently reducing the tension in many cases of glaucoma. The operation is easy to perform and it does produce adequate filtration in cases in which the tension is not too high. The disadvantages of the procedure are that it has been reported to give rise to sympathetic ophthalmia, although such reports are being seen with decreasing frequency. In the case of an atrophic iris in the aged the operation does not produce the desired results. Some authors have compared the inclusion of the iris pillars in the wound to a wick, but in a personal communication Sanders[17] has stated that pathologically this is not true. The iris pillars simply serve to hold the wound open until it can be lined by endothelium.

Trephining. This operation, originally described by Elliot,[18] was extremely popular for many years but recently it has been used less frequently due to the rising popularity of iridencleisis. In chronic glaucoma with high tension, above 40, it is to be preferred to the iris inclusion procedures in that it gives a larger area of filtration. The disadvantages of the operation are that it is liable to produce lens changes, the opening may become plugged by subconjunctival tissues, there is occasionally delayed restoration of the anterior chamber, and hypotony may develop.

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LaGrange Iridosclerectomy. This operation, like the trephining, is technically more difficult than iridencleisis and there is more trauma connected with it. However, in higher tensions it seems to produce better results than iridencleisis. In the writer's experience it is the operation of choice in the Negro.

Flap Sclerotomy. This procedure was first described by Herbert,[19] but then fell into disrepute, even its originator abandoning it. However, recently Cruise[20] has reported on his use of a modified Herbert's procedure over a period of twenty-five years. During the years 1947 and 1948 the writer has done 42 of these operations with the desired results obtained in better than 88%. These cases include acute narrow angle glaucoma, chronic narrow angle glaucoma, and wide angle glaucoma. As Cruise[20] and Boxill[21] described the technique, a conjunctival flap is dissected down to the limbus and the cornea split for a distance of about 1 mm, as is done in the trephining operation. The flap of conjunctiva is turned down over the cornea and a 5 mm. horizontal incision is made into the sclera 1 mm. behind the limbus with a cataract knife. The sclera is perforated in the center of this incision due to the straight blade cutting on the convex surface of the globe. When this point is penetrated the surgeon then ceases cutting and waits for the gradual decompression of the anterior chamber. After this is completed the incision is enlarged through the entire depth of the sclera over its 5 mm. length. At either end of this incision one blade of a small scissors is inserted and a 2 mm. cut, directed toward the center of the cornea, is made at each end of the primary incision. The insertion of an iris spatula protects the iris at this point. The conjunctival flap is then replaced and one suture, tied in a simple knot, is placed between its margins. The operation is easy to perform and the results have been good. Massage of the globe is started within 24 hours after the operation and is carried out twice daily until the surgeon is certain that a filtering cicatrix has been established. The massage tends to keep the hinged flap elevated and the wound open, thus preventing the formation of fibrous tissue which would clog the opening, and allowing the endothelium of the cornea to grow into the wound, lining it.

Acute Narrow Angle Glaucoma

By far the greater majority of acute cases with congestive symptoms fall into this category. Prompt reduction of the intraocular tension in these cases is essential, and it should be well recognized that surgery should not be long delayed in these cases. In the older age groups, many of whom are debilitated by the infirmities of age, it is perhaps wiser to maintain them on a miotic regime, provided the tension can be reduced to safe levels by miotics, rather than to attempt surgery on a group of patients who would tend to have more complications than a group of ordinary healthy individuals. With the exception of this group it may be safely said that all patients who have suffered an attack of acute narrow angle glaucoma should undergo surgical treatment of the disease as soon as the eye can be got in shape for the operation.

In many of these cases the tension can be reduced by a strenuous regime of miotics to near normal or normal within a period of hours. If such can be brought about within twelve hours of the onset of the acute attack, it is then wise to wait until the eye loses all signs of congestion before operating. In this instance probably the operation of choice is the basal iridectomy, either peripheral or complete. If there are lens changes in addition to the glaucoma, then the complete iridectomy should certainly be done with a view to future extraction of the lens. The time element is extremely important in the choice of operation in these cases as is shown by the fact that when iridectomy is blindly adopted as the operation for acute glaucoma many failures result. In a small series Kronfeld[22] has reported 56% success with this operation in acute narrow angle glaucoma and Duke-Elder[23] estimates that the average success with this procedure in these cases will not be above 60%. Dunnington,[24] Chandler,[25] Kronfeld,[22] and others believe that the use of iridectomy in acute glaucoma is contraindicated when the case is of more than forty-eight hours duration and the tension cannot be maintained at normal levels by the moderate use of miotics. The primary reason for this view is that when acute glaucoma has persisted for such a length of time gonioscopic examination will reveal the development of peripheral anterior synechiae and the presence of these adhesions definitely lessens the chance of a successful outcome by means of an iridectomy. In such cases it is wiser to do some type of

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filtering operation rather than rely upon iridectomy. Again, it is probable that some of the cases in which miotics will not reduce the tension represent an acute exacerbation of a chronic state, and here, too, a filtering procedure should be the operation of choice.

In Kronfeld's[22] report on acute narrow angle glaucoma treated by iridencleisis or trephining there was no appreciable difference in the results, the tension being reduced in from 70 to 75% of the cases regardless of which method was used. In spite of this there seems to be a general feeling that trephining is a more hazardous procedure than iridencleisis and its use should largely be reserved for the non-congestive cases. Others, notably Goar[26] and Spaeth,[27] feel that the iridencleisis should not be used in the acute cases. The iridosclerectomy of LaGrange may be used, but, again, this is a more complicated procedure and is technically more difficult than the iridencleisis. In these cases the writer feels that there is definitely a place for the flap sclerotomy operation. It is surely non-traumatizing, except in cases where peripheral anterior synechiae are encountered and then it is necessary to do an iridodialysis with a spatula in order to eliminate these synechiae. It is easy to perform and seems to work well with a minimum of complications. Furthermore, slow decompression of the anterior chamber, which is highly to be desired in acute glaucoma, is performed very easily in this procedure.

Other procedures which have been used in the treatment of acute narrow angle glaucoma are paracentesis of the anterior chamber and the posterior sclerotomy. The former is mentioned only to be condemned. I have never seen a case of acute narrow angle glaucoma in which paracentesis did more than lower the tension for an hour or so. Furthermore, the ciliary body is already edematous in these cases and the sudden reduction of intraocular pressure only serves to cause more edema of the ciliary body, so that the procedure thus actually does more damage than it does good. Posterior sclerotomy still has its advocates, but most surgeons feel that if an operative procedure is indicated it is wiser to do one which will give permanent reduction of tension rather than one which is only temporary.

Chronic Glaucoma

Before resorting to surgery there are several factors which should be taken into consideration. First, the medical treatment of the case has to be evaluated to determine whether the patient has had adequate miotic therapy. There is too great a tendency to operate upon all cases of glaucoma regardless of the situation which confronts us. The controversy between the medical and the surgical treatments has never been completely settled and, while many ophthalmologists feel that early operation is indicated in all cases of primary chronic glaucoma, it may well be that in the future new methods of medical treatment may be discovered which will upset all our present theories about the need for early surgical intervention in these cases.

The age and general physical condition of the patient must be taken into consideration, for, as Dunnington[24] has stated, the older the patient and the poorer the physical condition, the less urgent is the need for surgical intervention. In many of these patients the tension is only slightly elevated and the rate of deterioration of vision is slow, so that in this type it is probably wiser to rely upon medical treatment rather than to advise operation. These patients are more prone to develop the complications of glaucoma surgery than any other group. The irides are often atrophic and the vessels sclerotic and these changes create conditions that are less favorable for operation. In addition, in this age group the conjunctiva is often thin and atrophic, and there is not much of a layer of subconjunctival tissue. Again, these conditions are unfavorable for the formation of a satisfactory filtering cicatrix, and, if one is formed, the conjunctival bleb is most frequently extremely thin, which may lead to the danger of late infection. Many of these elderly patients will show some lens changes and frequently a few months after the operation for glaucoma has been performed a complete cataract will be formed.

The visual acuity should be checked at repeated examinations, and with deterioration of acuity we must be doubly sure that there are not present other conditions which are causing such deterioration rather than the glaucoma. Particularly in the older patients there are many conditions which may lead to a progressive loss of vision in addition to the glaucoma, such as lens changes, retinal disease, degeneration of the macula, etc., and if the visual acuity is failing due to the glaucoma there should be other signs of the progression of the glaucoma,

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such as progressive field changes and the elevation of the base pressure.

The ocular tension is another factor to be considered in these cases, but it should be remembered that normal tension for one patient is not necessarily normal for another. The eyes of one patient may be able to withstand higher pressure without damage than those of another patient. An evaluation of the peak and base pressures as described by Reese[6] may clarify the situation in regard to the ocular tension. By peak pressure is meant the highest point to which the pressure rises, while the base pressure is the lowest point to which it falls. Over a period of months or years a constantly rising base pressure is more indicative of future visual loss than is a peak pressure which remains elevated only for a short period and promptly returns to normal levels. Therefore, a constantly rising base pressure in spite of the continued use of miotics is one which will require surgery.

Visual Fields. It is of extreme importance that both peripheral and central fields be carefully and repeatedly mapped out and studied. The changes in the fields probably give a more accurate estimation of the progress of the glaucoma than any other method at our command. Great care should be taken in trying to detect the initial changes in the fields because, as Reese,[12] Burke,[28] and Randolph[29] and others have shown, the results obtained from early operation are a great deal better than those obtained when the operation is done in the later stages of the disease. In 1941 Randolph[29] set forth certain criteria for the classification of early and late glaucoma based upon the visual field changes. Those cases in which the peripheral field defect was not more than 15 degrees in any meridian, or the blind spot was enlarged not more than 10 degrees in any diameter were considered early cases. All cases not in this category were considered late cases. Of all early cases operated upon, by whatever means, the percentage of success was over 80%, while in all late cases operated upon the percentage of success ran about 35%.

Chronic Narrow Angle Glaucoma

This type of glaucoma is characterized by a narrow anterior chamber with the iris playing an important part in the blockage of the angle. At first it is merely by contact but later peripheral anterior synechiae develop and lead to permanent interference with drainage. Increasing narrowness of the angle, determined by gonioscopy, is an indication for operative interference, particularly when accompanied by other signs of progression.

The type of operation to be performed depends largely upon the case at hand. Iridectomy should be reserved for the early cases where the pathologic changes are at a minimum. When peripheral anterior synechiae have developed some form of filtration operation is necessary. Trephining is not satisfactory in this type because many times it fails to produce a filtering ciactrix due to the peripheral anterior synechiae, and, furthermore, there is frequently delayed restoration of the anterior chamber in this type of case which also makes trephining inadvisable. The iridosclerectomy of LaGrange has similar disadvantages, though they are, perhaps, not so marked. Both iridencleisis and the flap sclerotomy produce good results in this type of case and one or the other should be employed.

Chronic Wide Angle Glaucoma

The chamber is of normal depth and the angle appears to be open. In this type cyclodialysis has been advocated by some surgeons. This operation does not reduce the tension to such a large extent as does one of the fistulizing operations. It may be employed where the tension is not much elevated, but this brings up the question as to whether medical means would not work as well in this type of case.

In early cases of the disease iridencleisis or flap sclerotomy will work well when the tension is not elevated above 45 mm. Hg. However, when the tension is considerably elevated the trephining procedure should be considered along with the LaGrange iridosclerectomy. Both of these procedures will give more drainage than the inclusion operation or the flap sclerotomy and it is largely a matter of individual choice which of these two operations the surgeon selects. Goniotomy has been advocated for this type of glaucoma but in the writer's opinion it should be reserved for early cases of congenital glaucoma.

PROGRESSIVE FIELD CHANGES IN CONTROLLED GLAUCOMA

The problem of progressive loss of visual field following a successful filtration operation in glaucoma is one that has plagued ophthalmologists for years. The general consensus seems to be that these changes are due to an irreversible vascular process

which is set up while the tension is above normal limits and has progressed sufficiently so that when the tension is reduced, either by surgical or medical means, there is no regression, but apparently a continued progression of the vascular process.

Satisfactory pathological observations have been made on the ocular vascular system in few, if any, early cases of primary glaucoma. Duke-Elder[30] has stated that there is a vascular stasis and quotes three individual case reports by different workers in which all showed evidence of circulatory stasis and vascular lesions, either of periphlebitis or endophlebitis of the episcleral or vortex veins, with areas of leukocytic infiltration. Knapp,[31] in reporting on cases of atrophy of the optic nerve with cupping and low tension, states that "atheromatous carotid arteries cannot alone cause this descending atrophy, but the condition must be caused by simultaneous circulatory disturbances in the optic nerve from arteriosclerotic vascular changes." Best[32] called attention to the fact that arteriosclerotic changes in the small nutrient vessels may damage the optic nerve, while Siegert[33] and von Stief[34] believed that the cause of optic atrophy in cases of "pseudoglaucoma" are the result of arteriosclerotic changes in the vessels supplying the optic paths. LaGrange and Beauvieux[35] found sclerosis and obliteration of the small nutritive vessels of the nerve in several cases of primary glaucoma. Loewenstein[36] demonstrated changes in the walls and thromboses in the small vessels of the optic nerve producing cavernous degeneration and sclerotic plaques. He concluded that the degenerative changes found in the nerve in glaucoma are the result of vascular damage with impairment of nutrition rather than the effect of increased intraocular tension.

Rintelen[37] has described the histologic findings in cases of arteriosclerotic atrophy of the optic nerve. He believes that sclerosis of the central retinal artery has little or no effect on the nerve and that the damage in these cases is due to sclerosis of the small nutrient vessels. Vail[38] states "it is entirely probable that vascular disease of the nerve may account for the progress of cupping, atrophy, and field changes that frequently occur after the ocular hypertension has been quite controlled in true glaucoma, especially in the aged."

In 1948 the writer[39] gave a preliminary report before the meeting of the American Ophthalmological Society on "The Effect of Dicumarol on the Visual Fields in Glaucoma." At that time nine cases of advanced primary glaucoma were reported. The tension in these patients had been controlled by operation but in spite of a normal tension the field changes had shown a constant progression. The use of dicumarol was predicated upon the fact that it increases the prothrombin time, thus decreasing the clotting ability of the blood, and, as has been shown by Bingham, Meyer and Pohle,[40] Wright and Prandoni,[41] Bollman and Preston,[42] and Townsent and Mills,[43] the drug causes a widespread dilatation of the capillaries, arterioles and venules.

Of the nine cases cited in the preliminary report six obtained benefit from dicumarol some months or years after the tension had been brought under control by surgery, although after the tension had been controlled they showed progressive loss of field until the treatment with the anticoagulant. One of the nine cases had a course of dicumarol immediately following operation and five months later had a second course, following which there was marked improvement in the fields. The remaining two patients had dicumarol immediately following operation with improvement in the visual fields; therefore, it is impossible to say whether dicumarol was the effective agent in the gain in these latter two cases or that surgery played the important role.

Since the time of the preliminary report several other cases of primary glaucoma which meet the criteria established for the use of anticoagulants, that is, tension within normal range and progressive loss of field in spite of the low tension—have undergone the treatment. While it is far too early to come to any definite conclusions about this treatment, suffice it to say that well over half the cases in the writer's practice who have received the drug have shown improvement in the fields. It is believed that the method is well worth trial throughout the country, for, while no claims are made, nor can be made, for it at this early date, it can possibly prove to be one ray of light in the otherwise dark field of the therapy of the visual fields in primary glaucoma.

REFERENCES

1. Von Graefe, A.: Iridectomy in Glaucoma (Translated by F. H. Adler). *Arch. Ophth.* 1:71, 1929.
2. Laqueur, L.: Uber Atropin und Physostigmin in ihre Wirkung auf den Intraocularen Druck: Ein Beitung zur Therapie des Glaucoma. *Arch. F. Ophth.* **23**: 149, part 3, 1877.

XUM

3. Rosengren, Cited by Friedenwald, J. S.: Trans. Amer. Acad. O. and O. **169**, January-February, 1949.
4. Friedenwald, J. S.: Symposium, Primary Glaucoma, Trans. Amer. Acad. O. and O. **189**, January-Febuary, 1949.
5. Barkan, O.: Glaucoma: Classification, Causes and Surgical Control; Results of Microgoniscopic Research, *Am. J. Ophth.* **21**:1099, 1938.
6. Reese, A. B.: The Significance of the Base Pressure in Primary Glaucoma, *Am. J. Ophth.* **31**:25, 1948.
7. Loewi, Dale, *et al.* Cited by Cannon, W. B., and Rosenblueth, A.: Autonomic Neuro-Effector System, New York, Macmillan Company, 1937.
8. Leopold, I. H., and Comroe, J. H., Jr.: Use of Di-Isopropyl Fluorophosphate ("D. F. P.") in Treatment of Glaucoma, *Arch. Ophth.* **36**:1, 1946.
9. Dunphy, E. B.: Di-Isopropyl Fluorophosphate in Glaucoma, *Bull. New England M. Center* **9**:102, 1947.
10. von Sallman, L., and Dillon, B.: The Effect of Di-Isopropyl Fluorophosphate on the Capillaries of the Anterior Segment of the Eye and Rabbits, *Am. J. Ophth.* **30**:1244, 1947.
11. Gifford, S. R.: Some Modern Preparations Used in the Treatment of Glaucoma, *Arch. Ophth.* **57**:612, 1928.
12. Sansum, W. D.: Rapid Reduction of Intraocular Tension in Glaucoma by Timed Intravenous Glucose Injections, *J.A.M.A.* **68**:1885, 1917.
13. Van Dyke, H. B.: Autonomic Nervous System and Action of Drugs Important in Ophthalmology, *Arch. Ophth.* **38**:145, 1947.
14. O'Brien, C. S., and Swan, K. C.: Carbaminoylcholine Chloride in the Treatment of Glaucoma Simplex, *Arch. Ophth.* **27**:253, 1942.
15. Owens, E. U., and Woods, A. C.: Further Studies on the Use of Furmethide in the Treatment of Glaucoma, *Am. J. Ophth.* **29**:447, 1946.
16. Holth, cited by Cjessing: Acta Ophth. 1925.
17. Sanders, T. E.: Personal communication.
18. Elliot: A Treatise on Glaucoma, 2nd Ed., London, Oxford Med. Publications, 1922.
19. Herbert, cited by Lister, W. T., in Berens: The Eye and Its Diseases, P. 1125, W. B. Saunders Company, Philadelphia, 1936.
20. Cruise, R.: The Production of a Filtering Cicatrix in Glaucoma, *Brit. J. Ophth.* **XXXI**: 65, 1947.
21. Boxill, W. M. de C.: The Flap Sclerotomy in the Treatment of Glaucoma, *Brit. J. Ophth.* **XXXI**: 65, 1947.
22. Kronfeld, P. C.: Results of Surgical Treatment of Acute Congestive Glaucoma, *Quart. Bull. Northwestern Univ. M. School* **18**:203, Fall, 1944.
23. Duke-Elder, W. S.: Textbook of Ophthalmology: **3**, Diseases of the Inner Eye, St. Louis, C. V. Mosby Company, 1945.
24. Dunnington, J. H.: Symposium: Primary Glaucoma, Trans. Amer. Acad., Ophthal. and Otolaryng. January-February, 1949.
25. Chandler, P. A.: Treatment of Glaucoma, *Arch. Ophth.* **32**:23, 1944.
26. Goar, E. L., and Schultz, J. F.: Iridencleisis in Glaucoma, *Arch. Ophth.* **22**:1035, 1939.
27. Spaeth, E. B.: The Principles and Practice of Ophthalmic Surgery, Ed. 3, Philadelphia, Lea & Fibiger, 1944.
28. Burke, J. W.: Field Changes After Satisfactory Filtration Operation for Glaucoma, Tr. Am. Ophth. Soc. **37**:149, 1939.
29. Randolph, M. E.: Surgical Treatment of Glaucoma, *South. M. J.* **35**:352, 1942.
30. Duke-Elder, W. S.: Textbook of Ophthalmology, **III**: 334, L. Henry Kimpton, London, 1940.
31. Knapp, Arnold: *Arch. Ophth.* **23**:41, 1940.
32. Best, F., in Schieck, F., and Brucker, A.: Kurzes Handbuch der Ophthalmologie, Berlin, Julius Springer, 1931, **6**: P. 546.
33. Siegert, P.: *Arch. F. Ophth.* **138**:798, 1938.
34. von Stief, A.: *Ztschr. F. Augenh.* **70**:41, 1929.
35. LaGrange and Beauvieux: *Arch. D'Opht.* **42**:129, 1925.
36. Loewenstein, A.: *Arch. Ophth.* **34**:220, 1945.
37. Rintelen, F.: Ophthalmologica, **III**:285, 1946.
38. Vail, D.: *Am. J. Ophth.* **31**:1, 1948.
39. McGuire, W. P.: The Effect of Dicumerol on the Visual Fields in Glaucoma, Trans. Amer. Ophth. Soc., 1948.
40. Bingham, J. B., Meyer, O. O., and Pohle, F. J.: *Am. J. Med. Sc.* **202**:563, 1941.
41. Wright, I. S., and Prandoni, A.: *J.A.M.A.* **120**:1015, 1942.
42. Bollman, J. L., and Preston, F. W.: *J.A.M.A.* **120**: 1021, 1942.
43. Townsent, S. R., and Mills, E. S.: *Canad. M. A. J.* **46**:214, 1942.

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THE ALCOHOLIC PROBLEM*

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The alcoholic problem is, and has been, a challenge to the medical profession and especially to the field of psychiatry; certainly, thus far, we can lay no claim to fame for having conquered it.

The problem is primarily a medical one but it is also a social and economic one. It is my opinion, and there are few who will take issue with the statement, that every alcoholic is a psychiatric case. It is not always possible to discover the reason that an individual drinks to his detriment, but there is always a cause. Alcoholism is simply the symptom of the disease. Thus far, the results of the therapy are disheartening.

The problem is an increasing one and the prevention, as well as the treatment, should have the active support of every branch of medicine. Our profession can aid in the prevention by attacking the problem in its early stages and by supporting community programs, church activities, and the Alcoholics Anonymous organization, giving this type of help our medical support and guidance.

It is probably well at the outset to define an alcoholic. Diethelm says a person may be considered as suffering from alcoholism if he has become dependent on the use of alcohol to a degree that interferes with his success in life, and if he is unable to recognize this fact, or to abstain from the use of alcoholic beverages in an amount injurious to him.

Factors which enter into the treatment of an alcoholic are varied. Some of them are the level and quantity of the patient's intelligence, the level and quantity of his emotional maturity, the quality and intensity of the individual's desire to stop drinking, the presence or absence of any major or minor psychiatric illness, his life problems, and his reaction to varied emotional strains, whether at home or at work which may be too heavy for him to cope with. His occupation, his social contacts, his family situation and his physical illnesses are all important and must be properly evaluated at the onset.

The alcoholic must gain a thorough understanding and insight of himself as a person and of his particular situation in life. He must be completely sincere in his desire to stop drinking and must admit to himself, to his family, and to his physician that alcohol is a problem to him and one that he is unable to control. He must clearly recognize that what is food for some is poison and a pernicious drug for him, and that alcohol, at all times and under all conditions, produces unhappiness for him. The alcoholic must know that the motive behind his drinking is some form of self-expression, some desire to gratify an immature craving for attention, or to escape from an unpleasant reality in order to get rid of a disagreeable state of mind. He must be convinced that any reasonable and sincere person who is willing to make a sustained effort for a sufficient length of time is capable of living without alcohol. He must resolve to tell the truth to his family and to his physician without waiting to be asked, and he must be equally honest with himself. The alcoholic, having above average intelligence as a rule, should realize from his past experience that drinking means a failure in life, whereas abstinence would likely mean success. He must be impressed with the knowledge that his real goal in life is success, efficiency and contentment, and that in his case his goal cannot be reached without abstinence. If he is able to stop drinking he must not regard himself as a hero or martyr and make unreasonable demands on his family to gratify his every wish. He should be tolerant of others who drink moderately or excessively and not shun those friends who do imbibe socially. Many alcoholics who stop drinking avoid their friends who do drink moderately and appear to be ashamed to admit that they are unable to take a drink, and may feel self-conscious in the presence of their friends because they are unable to drink. On the other hand, the opposite is quite true. Most moderate drinkers respect a person all the more who abstains either because he is unable to handle whiskey or because he does not like it. The alcoholic should be taught to take his life "in stride", to accept success as well as failure without too much elation on the one hand and depression on the other, for the reason that unpleasant experiences can serve as a good excuse to take a drink

*Read at the annual meeting of the Medical Society of Virginia, at Fort Monroe, October 9-12, 1949.

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and successes may do the same. It is easy for an alcoholic to become discouraged early in his fight against the habit and even though he may "stump his toe" a time or two, it is not sufficient evidence for one to feel that the cause is hopeless. Many alcoholics get a sense of security in the early period of their reorganization when the premature feelings of victory occur—at this time he should be on his guard.

It has been said, once a man has passed from normal to abnormal drinking, that he can never learn to control his drinking; in this statement I do not concur, but it is advisable to warn the alcoholic that for him to ever attempt to drink again is a dangerous procedure. Many alcoholics use their alcoholic ancestry as an excuse for their drinking but it is not a good reason. Small quantities of alcohol such as a glass of wine or a bottle of beer must be avoided. He must not be told that he can drink any quantity of intoxicants, certainly not until he has been abstinent for several years and even then, as we have stated, it is a dangerous procedure. Alcohol does not sharpen his wit and intellect—it is indeed a false friend in that regard.

The excessive use of alcohol has probably caused more heartaches and trouble than any other one thing in the world. On the other hand, its temperate use has given much pleasure and happiness to many. Contrary to the common belief, alcohol is beneficial to the middle-aged and aged—it eases tension, relaxes the nerves, helps support the circulation, and reduces blood pressure. Alcohol may be a dangerous medicine when used to ease fatigue, to boost one's spirits or make one forget.

There are three quarters of a million alcoholics in this country. In addition, there are said to be three million so-called heavy drinkers, many of them potential alcoholics, whose efficiency is materially altered by it, which causes a heavy toll to industry. It has been said that the average American spends more than 4% of his income on hard liquor and that the cost of alcoholism in one year in the United States far exceeds $12,000,000,000 and that the cost exceeds two-thirds of the cost of the care of all physical illnesses.

It is a healthy omen to note that the legal profession has begun to consider alcoholism as an illness and that treatment rather than corrective measures are indicated. Care and prevention, and not punishment and incarceration, should be encouraged. In the field of prevention it must be remembered that prohibition is not the answer; this "noble experiment", as all of us know from experience, has proven a dismal failure.

To properly treat the alcoholic one must understand the alcoholic as a person. Each of these individuals is different and there is no fixed personality type although there is similarity in all of them. It is most important to understand the patient's life situations so as to be able to understand why he is reacting as he is. The attitude of the therapist must be a tolerant one. Some authorities claim that he must be a teetotler himself to obtain the best results. He cannot be dogmatic and his approach must be flexible and not dictatorial. These individuals, as a rule, have better than average intelligence and practically all alcoholics are attractive, nice people when sober. Therefore, his intelligence should not be insulted by treating him without consulting him about the procedure. If the patient's cooperation is not had and he has no real desire to get well, you are wasting your time in trying to help him with his problem. The procedure in the committed case, of course, must be different and in the one who does not admit that he needs or desires help. Institutionalization is often necessary so as to make him inaccessible to alcohol while he is being made sober, in the hope that when not under the influence of alcohol he will be more reasonable and more cooperative to treatment. My experience has been that the result is invariably poor when the individual is not willing and sincerely anxious to be helped.

The alcoholic has a poorly integrated type of personality; he is one who does not withstand frustrations and gives evidence of rather marked emotional instability. He is frequently in the early stages of a psychosis, more commonly dementia praecox, or he may have a constitutional defect on a psychopathic basis. He may be a cyclothymiac and drink when depressed. Others, and I saw one recently, drink when elated. The psychoneurotic individual is probably the most common personality disturbance who resorts to alcohol to ease his tension and help him escape the problems of life.

O'Hollaren and his co-workers have reported results obtained in 23,023 cases of alcoholism over a period of ten and one-half years with the use of conditioned reflex treatment. At the close of their series in 1945, 44.8% were abstinent; of that figure 92

cases were treated a short time after relapse who have since remained abstinent, which would increase the rate to 48.8% for the entire series. His statistical analysis is interesting in that it reveals 85% of their patients treated by this method have remained abstinent six months or longer, 70% for one year, 60% for two years, 50% for three years, 40% for four years, 30% for seven years, 24% for ten and one-half years or longer. Their relapsed patients remained abstinent for an average period of slightly more than eleven months before resuming drinking, and the figures demonstrate that even in the cases of relapsed patients treatment was worth while.

It is my belief that the question of excessive drinking may possibly be controlled by placing in alcoholic beverages before they are bottled a sensitizing substance similar to Antabuse which would enable the average individual to take two or three drinks before feeling the disagreeable effects of the drug. In that way convivial drinking could be indulged in by all without fear of drunkenness or chronic alcoholism due to the disagreeable effects occasioned by the ingestion of more than a moderate amount of alcohol. The individual tolerance to the sensitizing drug would vary considerably as does the individual tolerance to alcohol.

The conditioned reflex procedure has been used for many years and has moderately been successful as a drug therapy. The technique is as follows: The patient is given this treatment after a period of several days in which he has been free from alcohol or sedatives. The treatments are given in the morning before breakfast in a separate room in which is set up the different types of alcoholic beverages that the patient usually imbibes. For psychological effects, some clinics and hospitals have erected in the treatment room a bar, including the rail, stools, sawdust and a mirrored buffet on which there is an array of popular whiskeys and other alcoholic beverages. At the outset of treatment the patient is given two large glasses of warm water containing a small amount of oral emetine. This is followed by an injection containing emetine, pilocarpine and ephedrine. He is given a small sample from each of the bottles of whiskey in rotation, allowing him to taste and smell the beverage only—he must not be allowed to swallow it. This is continued up until the point that he becomes nauseated and vomits and when the maximum level of nausea is reached the stimulation is discontinued. The above is characteristic of the first treatment day. On the next and subsequent days as nausea approaches the patient is allowed to drink the beverages in turn but not until the therapist is sure that ingestion will induce vomiting. This procedure is repeated for about eight days. On the final day the procedure is repeated without the use of emetic drugs. The patient should receive reinforcing single treatments at six weeks, three months, six months, and one year after the initial treatment course.

Several authors have reported encouraging results in chronic alcoholics with the use of a sensitizing drug commonly known as Antabuse (tetra ethyl thiuram disulphide). The scheme of treatment is as follows:

A careful physical examination is made to determine the patient's medical status as the use of the drug is not without some danger. There have been reports of deaths and every therapist has experienced some violent reactions which are often quite extreme. The drug is not toxic even in large doses unless ethyl alcohol, paraldehyde or some similar chemical is imbibed. Liver damage should especially be looked for and, if present, is a contraindication. It is the opinion of most workers that the patient should be started on the drug while in the hospital so the reaction can be observed and controlled. He is given 2 grams of Antabuse the first day, 1½ grams the second, 1 gram the third, ½ gram the fourth and subsequent days. On the fourth day he is given 50 cc. of whiskey and his blood pressure, pulse and objective sensations are recorded for approximately two hours. He may be given intravenous fluids and cardiac stimulants such as adrenalin should the blood pressure fall to dangerous levels and remain there. The usual response is a marked flushing of the face which may extend into the lower trunk and extremities, and may effect the entire body, conjunctival injections with tearing and distention of the face, head and neck veins. There is immediately a slight rise in pulse rate and systolic blood pressure, followed within a few minutes by a precipitous drop, frequently to shock levels. There is a widening of the pulse pressure, tachycardia and a water-hammer type of pulse. At this phase there may also be an apical systolic murmur. The patient will complain of palpitation, of a rather vague uneasiness, and he eventually may lose consciousness.

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Other subjective descriptions of the experience vary but are uniform in that all sensations are quite unpleasant. There may be mild intermittent nausea and at times one or two episodes of vomiting. The more dramatic symptoms usually reach their height at about 30 to 45 minutes following the ingestion of the alcohol and continue for approximately an hour. A strong odor of acetaldehyde may be noted on the patient's breath during the treatment. There is a gradual return to normalcy over the next three to four hours, followed by feelings of fatigue and drowsiness. On the fifth day the daily dose of .5 gram Antabuse is resumed and continued for rest of hospital stay, and is to continue after discharge from hospital for a period of one to two years. Blood and urine studies should be made at regular intervals following treatment in hospital.

Insulin subshock and electric shock therapy have been used without gratifying results in the treatment of alcoholism. It should be remembered that psychotherapy is essential in the treatment of alcoholics if success is to be expected.

Part of the total approach to the problem of alcoholism is being studied by several university hospitals. Among the earliest of these setups was that instituted in Virginia at the Medical College of Virginia Hospital following an authorization by the State for this investigation. This is run as a combined in-patient and out-patient service for the study of alcoholics. The program began on October 16, 1948, and at present consists of a twelve bed hospital service as well as an out-patient department. There have been 212 cases studied thus far with 119 of these being in-patients. There have been roughly 2,500 patient interview periods. When it is possible these patients are seen in a preliminary interview, some carried entirely as out-patients and the others treated initially in the hospital. These patients are selected in accordance with their desire to receive help. There is an attempt made to study the distribution of patients as to age, economic status, educational background, alcoholic habits and previous attempts at treatment. All of these patients receive medical, psychiatric, and psychological investigations. In addition, any special diagnostic procedures deemed advisable are performed. They are studied from the standpoint of the effect of alcohol on the body at the same time that treatment is instituted. Their symptoms of acute alcoholism are treated first by the accepted therapeutic procedures. They are given psychotherapeutic interviews routinely and in addition there are daily sessions with the group. The usual hospital stay is about two weeks and the patients are followed as out-patients following their release. The follow-up treatment includes attention to diet and vitamin intake. Patients are also given Antabuse through these facilities according to the method outlined elsewhere in this paper. It is the purpose to follow all these patients for a period of one year.

No dissertation on the question of alcohol will be complete unless the aid the Alcoholics Anonymous has given is mentioned. Their work has been valuable and stimulating. Although they cannot help all alcoholic persons, it is important to recognize that its members have helped a good many. Just how it works no one exactly knows, but they use in their therapy a composite of medicine, psychiatry and religion. They accept alcoholism as a disease without moral stigma; they warn the alcoholic person that at all times he is just one drink removed from his disease. They provide friendship and companionship on an acceptable social level. The alcoholic is no longer an outcast; when he enters membership they try to teach him to live without fear of the future. An individual member reaches out to help his fellow alcoholic addict to sincerely try to stop drinking, thus utilizing the strong bond which exists among persons with this addiction. They practice group therapy including testimony, confession and a challenge to the addict to understand his condition, and they attempt to show him a way to do something about it. They use individual psychotherapy in which a former alcoholic counsels him for spiritual power free from restrictions of organized religion. They stimulate his ego and teach the alcoholic that he is someone and not just a "drunk". He sees men and women who had reached the lowest rung of the social ladder once again enjoying a life of confidence, social acceptance, and established successfully in their vocations. He is stimulated to emulate them.

We have attempted in this paper to give you an over-all picture of the problem of the alcoholic and have made certain suggestions as to therapy. The problem will probably never be satisfactorily solved but it is hoped that the studies being made at the various centers will add something worthwhile to our armamentarium.

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Medical Society of Virginia Cancer Committee

Chairman, GEORGE COOPER, JR., M. D.

Medical School Building, University, Virginia

Reprints of this and preceeding Bulletins may be obtained from this office

July 1, 1950

Case Reports

A 36 year old man was referred to a chest clinic by his family physician because of "failure or resolution of left lower lobe pneumonia." Four months before, the patient had developed an acute upper respiratory infection with physical signs of consolidation and an x-ray demonstration of a heavy density in the left base. Chemotherapy during most of the four month period had produced temporary relief from cough, sputum, and fever, but on the whole, the symptoms had grown progressively worse and there had been a steady loss of weight and strength. On serial roentgenograms the density in the left base had not only persisted, it had grown denser. X-ray studies on admission to the chest clinic showed a complete atelectasis of the left lower lobe. On Bucky films, a distinct mass, obscured on the conventional films, was demonstrated in the left hilum. At bronchoscopy, a biopsy was obtained from a mass blocking the left lower lobe bronchus. The pathological report was carcinoma. At exploration, a condition that was hopelessly inoperable because of mediastinal invasion was found. Death followed in a few months.

Comment: 1. Infection behind a point of partial bronchial obstruction readily occurs. Even in early lung cancers, there is a history of a complicating pneumonia in 15 to 20 per cent of cases. The percentage becomes much higher in more advanced lesions.

2. Since the signs and symptoms of pulmonary infection secondary to a growing cancer are only those of uncomplicated pneumonitis, and since inflammation readily masks tumor on x-ray, all pneumonitis should be followed by x-ray until it has cleared.

3. Clinical response to treatment is no reason to omit serial x-ray studies. Not infrequently, the complicating infection clears up entirely under treatment, but this does not influence the underlying cancer.

4. When the x-ray findings interpreted as representing pneumonitis fail to clear up promptly, cancer at once becomes the primary consideration. In the above case, cancer should have been suspected at least three months before referral to the chest clinic, at which time an operable lesion might have been found. The doctor who is not constantly alert to the possibility of cancer will seldom, if ever, reach a diagnosis early enough to hope for a cure.

A 47 year old man was referred to a chest clinic for evaluation of "an atypical tuberculosis." The story was that *two years before* a small infiltrate in the left apex had been discovered on a chest survey x-ray film. The patient had been closely followed ever since. Repeated sputum examinations had all been negative for tubercle bacilli. On serial x-ray studies, the infiltrate first disappeared, then recurred in the same spot, and slowly grew larger. On the more recent roentgenograms, the left hilar nodes were found to be enlarging.

Papanicolaou smears and bronchoscopy, in addition to more sputum examinations, were done at the clinic but were all negative. At exploratory thoracotomy, an inoperable carcinoma of the left upper lobe was found with extension into the hilar nodes and mediastinum. The patient died six months later.

Comment: 1. A carcinoma arising peripherally in an upper lobe often cannot be distinguished roentgenologically from tuberculosis. Also, it must be remembered that carcinoma and tuberculosis in the same lung is not a rare combination.

2. When a supposedly tuberculous lesion fails to show x-ray evidence of improve-

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ment after proper treatment, especially when the sputum contains no tubercle bacilli, the possibility of cancer must be investigated at once.

3. When the sputum is positive for tubercle bacilli but the clinical course and x-ray findings are atypical, the development of carcinoma should be suspected.

4. Exploratory thoracotomy is now such a safe procedure that no hesitation should be felt in resorting to it promptly in the face of an uncertain diagnosis.

5. The above patient had a slowly growing lesion. If the correct diagnosis had been made 18 months sooner, it is almost certain that he could have had a pneumonectomy and a good prognosis.

6. The only reason the diagnosis was not made sooner was that the physicians who attended him did not think of cancer as a possibility.

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PREGNANCY AND HEART DISEASE

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and
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Nothing is more pathetic than a young woman desirous of children who has been frightened from pregnancy by some overzealous physician telling her she has a heart murmur. The mortality rates of pregnancy with heart disease, although somewhat lower in the past few years, are also pathetic. A happy medium must be found. This can be done only by stricter examination of those who wish to become pregnant, or are already pregnant, and by closer supervision throughout pregnancy.

A review of a small part of the literature concerning pregnancy and heart disease has been made, and the incidence, etiology, a discussion of normal findings in pregnancies that may be misleading, and a clinical study outline are given below.

White states that about 4% of pregnant women have cardiac signs or symptoms, one-half of these (2%) having organic heart disease.[1] Other series do not vary a great deal. Stromme and Kuder in 1946 found 720 cases of heart disease in 23,858 pregnancies, or 3.02%.[2] Up until the period of sulfonamides and antibiotics cardiac disease accounted for about one-tenth of all deaths during pregnancy, being exceeded only by hemorrhage, puerperal sepsis, and pneumonia.[3] With the present use of these drugs the ratio of cardiac deaths is even higher, the number of infectious deaths having dropped sharply.

Statistics as given by Evans[6] infer that when a person with heart disease survives one or more pregnancies prognosis for further pregnancies is good. His mortality rate was 15% in primiparous patients, and 2% in multiparous patients.

Mitral heart disease caused by rheumatic fever is the leading cause of heart disease in pregnancy. Other causes are congenital heart disease, hypertension, luetic heart disease, and thyrotoxicosis.[1] Another cause not given in textbooks, but which should be considered, is coronary disease. In recent years more and more coronary deaths are being reported in young people.[4,5] One case of myocardial infarction with typical electrocardiographic changes during labor has been seen by the author in a woman 32 years old.[7] No doubt other cases of sudden death during pregnancy and labor have been due to this.

Pregnancy definitely puts an extra burden on the heart. The cardiac output is increased 50% near the ninth month,[8] and the blood volume is increased 42%.[9] Thus, it is exceedingly important to examine every pregnant woman carefully for heart disease and to determine whether those having heart disease are able to go to term.

As elsewhere, nothing takes the place of a careful history and a thorough physical examination. The history is probably the most important item in the clinical workup of those pregnant patients who are being studied for heart disease. It is important enough for the New York Heart Association to base its classification upon the history of the past and present disability, and not by physical examination.

The various laboratory procedures for the examination of the cardiovascular system, e.g., electrocardiography, orthodiagrammatic studies, determinations of venous pressure, etc., are helpful, but none of these gives a true indication of what the heart will undergo during the strain of pregnancy. The history does give some index, that is—those patients who may have a murmur, their heart is moderately enlarged on fluoroscopy, or have stable electrocardiographic changes—if they say they enjoy swimming or a set of tennis without having dyspnea or anginal pain, then much more insight has been gained with a few questions than by time-consuming and expensive procedures.

Needless to say, the physical examination should be complete on all pregnant women. So often the physical examination on the first prenatal visit is limited to the weight, a peek at the tonsils, a hurried auscultation of the heart and the blood pressure measurement, whereas a complete examination might reveal other findings that would increase the index of suspicion for heart disease. It must be remembered, however, that pregnancy causes changes that may be misleading on physical examination. Anemias accompanying pregnancy may cause physiological murmurs, and varying degrees of ankle edema

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may normally be present. The pulse rate is increased up to the seventh month when it falls to normal rapidly.[10] Extrasystoles are more prone to occur because of increased intra-abdominal pressure and excursion of the diaphragm is limited for the same reason.

If the history and physical examination reveal evidence of heart disease and the routine laboratory studies of complete blood counts, serology, and urinalysis have been made, then the special studies of the patient should be carried out. This should consist of an electrocardiogram, venous pressure, circulation time, blood urea, orthodiagram or 6 foot x-ray plate, vital capacity, and possibly a B. M. R. determination.

It is to be remembered that the venous pressure (arm) and circulation time of pregnant women fall in normal limits[10] and thus these studies can be as useful as in non pregnant cardiac patients.

Careful interpretation of increased heart size or x-ray must be made, as Landt and Benjamin have shown in a series of 19 pregnant women[10] that during the middle months of pregnancy the diaphragm is elevated on both sides on an average of 2 cm. above normal with an increase of the oblique and transverse diameters of the heart of .5 cm. to 1 cm. over normal size. The anterior posterior diameter of the heart is increased about 1 cm. over normal. This, of course, is not a great difference, but it does show the heart to be changed enough that careful measurements are important, and as this is relatively a small series of cases wider variation of normal is conceivable.

Vital capacity studies are perhaps of the least value because of the difficulty of differentiating whether the pregnancy or heart disease is the cause of lowered readings.

The electrocardiogram is an important adjunct in the study of heart disease in pregnancy as in heart disease elsewhere. In pregnancy its usefulness lies mainly in the interpretation of arrhythmias and in the diagnosis and evaluation of acute carditis, especially rheumatic fever. Prolonged P R interval measurements have long been an important criterion for acute rheumatic myocarditis. Recently it has been shown that the Q T interval is prolonged in all cases of rheumatic carditis.[11] Benjamin, in a recent series of 50 normal pregnant women using Taran's modification of Bazett's formula, found the corrected Q T intervals all below the commonly accepted normal upper limit of .425 sec.[12] Thus this measurement is of considerable significance in pregnant women suspected of acute rheumatic fever as in nonpregnant women.

Electrocardiograms in pregnant patients have certain normal changes. They usually show a shift of the axis to the left in the last trimester and the amplitudes of the electrocardiogram are less as the diaphragm is displaced upward with rotation of the heart.[13] Leads I and II tend to remain constant while lead III and the chest leads undergo changes as pregnancy progresses.

Some of the changes that have been found in normal pregnancy[9] are: Gradual inversion of T 3 from the fourth to the ninth months, decrease in voltage of the Q R S complex in lead III, inversion of Q R S complexes in lead III, small Q 3 waves, slurred Q R S complexes in lead III, shifting of the S T segment in lead IV, and T wave changes in lead IV. As stated above all these are the result of left axis deviation.

A discussion of treatment of heart disease in pregnancy will not be undertaken, as it is the same as elsewhere for the most part. The main issue is whether those having heart disease should be allowed to become pregnant, and those already pregnant whether they should be allowed to continue. Probably the New York Heart Association's classification is the best criterion as to the outcome of pregnancy in existing heart disease. It is as follows:

Class 1. Patients with heart disease who have no discomfort on considerable exertion.

Class 2. Those with heart disease who are slightly limited in activity because of dyspnea.

Class 3. Those with heart disease who are greatly limited in activity.

Class 4. Those with heart disease who are bed ridden.

Pardee has shown[14] that patients in classes 1 and 2 take very little chance in pregnancy. Patients in these classes should be followed closely and should be delivered spontaneously or by forceps under anesthesia. Class 3 patients and some in class 2 sometimes require treatment for heart failure but can usually be delivered by forceps, avoiding the second stage.[3] Patients in class 4 should be treated for failure and if seen early the pregnancy should be interrupted. At the same time the patient should be

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sterilized if she is able to undergo this procedure. Some feel that if class 4 patients improve with treatment they should be allowed to go longer toward term.[3] If seen late in pregnancy it is better to allow patients to deliver spontaneously or by forceps than to interrupt the pregnancy. Cesarean section at that stage should be avoided.[1] Brown *et al.*[15] suggest that patients with heart disease are able to undergo vaginal delivery as well or better than by section because there is a temporary occlusion of the placental shunt during uterine contraction of labor which, according to Burwell's hypothesis, acts as an arteriovenous fistula.

Although an attempt at classifying patients and general rules for treatment are made by various authors, every case must be individualized.

In summary, pregnancy with heart disease has a high mortality rate, but many patients with heart disease can safely have children. Some normal findings in pregnancy are misleading and should be kept in mind. Most important of all, early careful examination of all pregnant women must be made, and extremely close supervision of those with heart disease must be carried out.

BIBLIOGRAPHY

1. White, P. D.: Heart Disease, Third Edition; The Macmillan Company, 1948; Pp. 551-552.
2. Stromme, W. B., and Kuder, Katherine: Heart Disease In Pregnancy; *Amer. J. Obst. and Gynec.* **41**:264, August, 1946.
3. Stander, H. J.: Williams Obstetrics, Eighth Edition; Appleton Century Company, 1941; Pp. 560-564.
4. Reich, N. F.: Coronary Deaths in "Healthy" Young Soldiers—Clinicopathologic Study; *Amer. Practit.* **2**:731, July, 1948.
5. Yater, W. M., Traum, A. H., Brown, W. G., Fitzgerald, R. P., Geisler, M. A., and Wilcox, B. B.: Coronary Artery Disease in Men 18-39 Years of Age—Report of 866 Cases, 450 with Necropsy Examination; *Am. Heart J.* **36**:683-722, November, 1948.
6. Evans, P. R. C.: Heart Disease and Pregnancy—Study of 100 Pregnancies; *Guy's Hosp. Rep.* **96**: 194-207, 1947.
7. To be reported.
8. Stander, H. J., and Cadden, J. F.: The Cardiac Output in Pregnant Women; *Am. J. Obst. and Gynec.* **24**:13, 1932.
9. Thompson, Hirsheimer, Gibson, and Evans: *Amer. J. Obst. and Gynec.* **36**:48, 1938.
10. Landt, H. E., and Benjamin, J. E.: Cardiodynamic and Electrocardiographic Changes in Normal Pregnancy; *Am. Heart Jour.* **12**:592, 1936.
11. Taran, L. M., and Szilagyi, Nelly: The Duration of the Electoral Systole Q T in Acute Rheumatic Carditis in Children, *Am. Heart J.* **33**:14, 1947.
12. Benjamin, Z. H.: Duration of the Q T Interval in Normal Pregnant Women, *Am. Heart J.* **38**:119, 1949.
13. Katz, L. M.: Electrocardiography, Lea and Febiger, 1941, p. 300.
14. Pardee: *Jour. Amer. Med. Assn.* **103**:1889, 1934.
15. Brown, Sampson, Wheeler, Gundelfinger, and Geanseracusua: Physiologic Changes in Circulation During and After Obstetric Labor; *Amer. Heart J.* **34**:311-333, September, 1947.

Family Doctors Outnumber Specialists Two to One.

Nearly two out of every three physicians in private practice in this country are family doctors, as is brought out by the American Medical Association's recent count of physicians in connection with its publication of the 18th edition of the American Medical Directory.

The new directory shows that the physicians of the United States are in the following classifications: 72,550 are in general practice and 22,976 are in general practice but give some attention to a specialty; 54,891 limit their practice to a specialty; 12,536 are in federal government service; 9,700 are retired or in fields not related to medicine; 3,737 are in administrative, editorial or other executive positions related to medicine, and 24,887 are interns, resident physicians or full time physicians in hospitals.

The previous directory, issued in 1942, listed the number of physicians in the United States as 180,496. In the 1950 edition the number is 201,277, an increase of 20,781 and an average yearly gain of 2,598 during the last eight years.

Califorinia leads in the number gained, with 16,668 physicians in 1950 as compared with 12,365 in 1942, an increase of 4,303. New York State shows a gain of 2,284; Texas, 772; Pennsylvania, 704; Florida, 634, and Massachusetts, 603.

Among the 24 largest cities in the United States, New York City (including Brooklyn) is first in physician population with 17,915 physicians. Chicago is second with 7,477; Philadelphia is third with 4,894; Los Angeles is fourth with 4,183; and Boston is fifth with 3,388.

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CLINICOPATHOLOGICAL REPORTS

From the Case Records of the Medical College of Virginia and the University of Virginia Hospitals.

HARRY WALKER, M.D., *Editor*
WILLIAM KAY, M.D., *Associate Editor*

CASE NO.: B-80770

This 76 year old white male was admitted to the Medical Service of the Medical College of Virginia Hospital on March 20, 1950, with the chief complaints of weakness and abdominal pain. He stated that he had been perfectly well up until about three months previously when just before Christmas he developed a cold. This cold was severe and was accompanied by a productive cough with moderate sputum, but no blood. He was treated by his local doctor with penicillin tablets, but the cold seemed to persist. He then began to lose his appetite and become weak. Gradually over a period of three months he became progressively weaker and had pronounced anorexia. About two months before admission to the hospital he began to notice postprandial regurgitation of undigested food, about 15-20 minutes after eating, but there was no difficulty in swallowing. One month before admission to the hospital he became completely confined to bed and noted the gradual onset of aching abdominal pain which was slightly worse in the right upper quadrant and radiated through to his back. This had no particular relation to eating. He then began to notice light-colored stools and dark urine and whereas the dark urine has persisted to the time of admission, there was an occasional normal colored stool, though most of them were very light in color. For several days before entry to the hospital the patient noticed general pruritus and he was told by a neighbor that he was jaundiced. He lost about 75 lbs. during the present illness. There was no history of bloody or tarry stools and there were no G-U symptoms. He had no fever, but noticed an occasional chill during the month prior to entry. The remainder of the patient's history was essentially non-contributory.

Physical examination on admission to the hospital revealed a well developed, but very poorly nourished and deeply jaundiced, white male who was lying propped up in bed in no acute distress. Temperature 101°, pulse 110, respirations 22 and blood pressure 140/100. The skin was markedly icteric. There were multiple epitheliomata scattered over the face and there were linear scratch marks scattered over the skin of the body. There were a few shotty lymph nodes in all areas, but there was no significant adenopathy. The mouth was negative except for an atrophic tongue and cracks at the corners of the mouth. The heart and lungs were not remarkable. Examination of the abdomen revealed that the liver edge was palpable 3-4 finger breadths below the right costal margin and felt soft. There was no tenderness. The spleen and kidneys could not be felt. The colon was easily palpable throughout. Rectal examination revealed no hemorrhoids and the prostate was small. Feces appeared to be acholic. Examination of the extremities was not remarkable except that the palms of the hands were very pink in color.

Laboratory Data: Urinalysis on entry was essentially negative except that the urine was positive for bile and this was confirmed at subsequent examinations. Initial blood count showed a hemoglobin of 16 grams with a red count of 5,200,000, white count 13,200 with 70% polys. A serum flocculation test was negative. Liver function studies showed the following results: Cephalin flocculation negative, serum protein 6.72, albumin 3.0, globulin 3.7, serum bilirubin direct 11.7, total 19.6. BSP no abnormal retention. Prothrombin time 14 seconds, control 12 seconds, concentration 60%.

Course in the Hospital: The patient was studied on the Medical Service for four days, after which he was transferred to the Surgical Service in preparation for operation. While on the Medical Service an x-ray of the chest and a gastro-intestinal series were obtained. He was given large doses of vitamin K and after transfer to the Surgical Service was given supplemental glucose parenterally. He was started on penicillin on the 9th hospital day and was operated on the same day. Post-operatively the patient did poorly and he died on the 7th post-operative day.

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DISCUSSION BY R. C. SIERSEMA*.

The protocol is relatively brief. I shall use it as a guide for our discussion. We are dealing with a man, aged 76, admitted to the Medical Service of the Hospital on March 20 of this year, with chief complaints of weakness and abdominal pain. He stated that he had been perfectly well until about three months previously, when just before Christmas 1949 he developed a cold. This cold was severe and was accompanied by a productive cough with moderate sputum, but no blood. He was treated by his local doctor with penicillin tablets, but the cold seemed to persist.

It would be my impression that perhaps his term of illness very definitely started at that time, that the cold was severe, and that it lingered on because he had started to go downhill—his resistance to infection perhaps being definitely lessened from the earliest phase of his illness. He then began to lose his appetite and became weak. Gradually over a period of three months he became progressively weaker and developed marked anorexia.

Up to that point we are dealing with an elderly man who was apparently going downhill. About two months before admission to the hospital he began to notice postprandial regurgitation of undigested food, about 15-20 minutes after eating, but there was no difficulty in swallowing. One month before admission to the hospital he became completely confined to his bed, due to the gradual onset of an aching abdominal pain which was slightly worse in the upper right quadrant and radiated through to the back. This pain had no particular relation to eating. He then noticed light-colored stools and dark urine and, whereas the dark urine has persisted to the time of admission, there was an occasional normal colored stool, though most of them were very light in color.

It might be well for us to state at this time that perhaps there was a significant point being brought out in that sentence; namely, in a person who apparently has had a profound jaundice, even though the biliary tract might now be open, the dark colored urine would persist because of the depth of the jaundice and one would expect dark colored urine to continue for a period of days after the obstruction had disappeared. It would seem at that point as though there surely must have been a ball valve-type of obstruction, which at times completely blocked off the flow of bile, and at other times permitted it to pass through.

For several days before entering the hospital the patient noticed generalized pruritus, and he was then told by a neighbor that he was jaundiced.

The question of the pruritus might well be another point in favor up to this time of an obstructive type of jaundice, because I think that an obstructive jaundice will give rise to pruritus, whereas an acute hepatitis with the association of jaundice might well have no pruritus at all during the course of the disease.

The patient lost about 75 pounds during his present illness. There was no suggestion of his original weight—it might have been that 75 pounds loss of weight might have been a terrific loss of weight in a 72-year-old man; however, if he were particularly heavy at the onset of his illness, it might not be quite so grave.

There was no history of bloody or tarry stools and there were no genito-urinary tract symptoms. He had no fever, but noticed an occasional chill during the month prior to entry. I think in that statement we might well have an error, if he had chills, real chills, surely there was an associated fever even though it was not recorded at the time.

The remainder of the patient's history was essentially non-contributory.

The physical examination on admission to the hospital revealed a well-developed, but very poorly nourished and deeply jaundiced white male, who was lying propped up in bed in no acute distress. Temperature was 101, pulse 110, respirations 22, and blood pressure 140/110. The skin was markedly icteric. There were multiple epitheliomata scattered over the face and there were linear scratch marks scattered over the skin of the body. The epitheliomata, I would assume, had no relationship to the jaundice. The scratch marks, I would assume, were due to the pruritus and the associated scratching.

There were a few shotty lymph nodes in all areas but there was no significant adenopathy. The mouth was negative except for an atrophic tongue, and fissures at the corners of the mouth.

It would be my impression that in the latter we are dealing there with a vitamin deficiency; perhaps that is right.

*Associate in Surgery, Medical College of Virginia, Richmond.

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The heart and lungs were not remarkable. Examination of the abdomen revealed that the liver edge was palpable, 3-4 finger breadths below the right costal margin and felt soft. We get the impression that no nodules were felt, that the distention of the liver perhaps took place slowly over a period of time; the absence of tenderness perhaps is a significant point. The spleen and kidneys could not be felt. The colon was easily palpable throughout its course. With a terrific weight loss and loss of abdominal muscle tone, one would expect to be able to feel most of the colon.

Rectal examination revealed no hemorrhoids and the prostate was small. Feces appeared to be acholic Examination of the extremities was not remarkable except that the palms of the hands were very pink in color. That last statement to me doesn't mean too much, and only this morning I commented on that statement to one of our group who is in this room, and got the impression that it is being looked for now in persons with jaundice, and it is perhaps an associate finding more with diffuse liver disease than it is with any obstructive jaundice. This is entirely new to me and I really know nothing about it.

The laboratory data: Urinalysis on entry was essentially negative except that the urine was positive for bile and this was confirmed at subsequent examinations. Initial blood count showed a hemoglobin of 16 grams with a red cell count of 5,200,000; white cell count 13,200 with 70% polys.

It was my assumption that this blood count, the original blood count on admission to the hospital, would have rapidly changed during the period of some several days. I should assume that this patient had a rather marked dehydration at the time of admission, and that there was a fair amount of hemoconcentration present at the time of this count. I am wondering how many counts were done thereafter and what the lowest count was.

In patients who have a neoplasm in the region of the common duct, involving the head of the pancreas, etc., the red cell count and the hemoglobin may stay particularly high; there is nothing to offend the hematopoietic system in the formation of red cells, perhaps at that time; and then, too, there is no blood loss through the gastrointestinal tract. The white cell count of 13,200 with 70% polys more or less goes along, I think, with the history of chills, fever (101 F.), or something like that at the time he was admitted to the hospital and would be best explained by an obstruction to perhaps the common duct and an associated cholangitis.

The serum flocculation test was negative, I assume that was for syphilis; liver function studies showed the following results: Cephalin flocculation negative, and I assume one would be dealing here with an obstructive type of jaundice; serum protein 6.72, certainly normal as the total with some change in the AG ratio; albumin 3, and globulin 3.7, serum bilirubin direct of 11.7, and a total of 19.6—a marked elevation, I would assume that, in thinking in terms of the icteric index, would be perhaps 150 or somewhere in that vicinity. The direct reaction would indicate, I think, an obstructive type of jaundice. The BSP showed no abnormal retention. That indicates we are dealing with a liver that is still functioning quite well. Prothrombin time was 14 seconds, control 12 seconds, and a concentration of 60%.

Course in the hospital: Patient was studied on the Medical Service for four days, after which he was transferred to the Surgical Service in preparation for surgery. While on Medical Service an x-ray of the chest and a gastrointestinal series were obtained. He was given large doses of Vitamin K and, after transfer to the Surgical Service, he was given supplemental glucose parenterally. He was started on penicillin on the day of surgery. Perhaps one might wonder why penicillin might not have been started prior to the day of surgery—there must have been a reason for it. Postoperatively, the patient did poorly, and he died on the 7th postoperative day.

The X-ray Department's interpretation: "There was prominence of the right hilar and lower trunk markings with the lung fields otherwise clear. No metastatic lesions were noted in the lung fields. There was prominence of the aortic knob and arteriosclerotic aorta with slightest prominence of the left ventricle.

"The swallowing functions were normal and no pathologic changes were noted in the esophagus. No hiatus hernia was seen. The stomach was J shaped with active and uninterrupted peristalsis. The duodenal bulb was triangular in shape with no niches or filling defects noted. There was the very slightest widening of the duodenal loop with signs of extrinsic pressure measuring 1X3 cms. along the greater curvature of the duodenal loop.

"At six hours there was a small amount of barium

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remaining in the stomach and the duodenum with the circular looping still suggested. The head of the meal was in the proximal ileum. The liver shadow was large and extended downward to the iliac crest."

I think that with the x-ray findings I perhaps should change my opinion or perhaps the original thought. Surely most of these cases are confusing and I am sure that the surgical staff went in with a perfectly open mind, and no definite diagnosis. The one part that is perhaps confusing, if the history is correct, is that during the course of the illness of the patient, the patient describes normal appearing stools followed by clay-colored stools. If there was not a true ball valve obstruction to account for it, one must think in terms of a decrease in edema at the site of the ampulla body to account for it; the red cell count would make one think more in terms of stones in the common duct, and it was my original idea before seeing the x-ray report that we perhaps were dealing with a picture that we don't see too infrequently, that is an elderly person who gradually develops jaundice, has vague, but not too severe pain in the right quadrant; that on exploration one finds the common duct quite dilated, and on opening the common duct, finds a lot of mushy cholesterol type stones and nothing else. Sometimes those patients do well, and at other times they do not. I think with the x-ray findings we must think more in terms of a new growth, tumor mass, in the head of the pancreas, to account for it.

My original idea was that he had an obstructive jaundice from stones in the common duct and, by acting at times as a ball valve affair, allowed bile to pass from time to time into the gastrointestinal tract but without x-ray studies, we can perhaps rule that out; the other is fibrosis of the ampulla of Vater. I don't believe it is that. Another cause might be (but I don't think it is that either) a diverticulum with inflammation in the region of the ampulla of Vater, which at times might present a picture somewhat like this. I think I am more or less forced to say, because of the age of the patient, the gradual onset, and the x-ray findings, that this patient had a carcinoma of the end of the pancreas.

It would be interesting to know, after we have finished, not only what was found but the operative procedure that was carried out. At this particular point, I would have no idea as to the cause of his death; he did die seven days postoperatively. We are dealing, of course, with an old person who would be a bad surgical risk at the very start, who went downhill, regardless of what was done, and died.

Hospital diagnosis: Carcinoma of head of pancreas with obstructive jaundice.

Dr. Siersema's diagnosis: Carcinoma of head of pancreas.

PATHOLOGICAL REPORT: DR. WILLIAM H. TALBOT*.

In the ampulla of Vater there was a mass measuring about 2½ cm. in diameter, projecting into the lumen of the duodenum. A section was made through this mass, but, before the section was made, a probe was passed from the common duct to the ampulla of Vater. Some resistance was encountered in passing the probe through the mass, and it is not known definitely whether the duct was patent or whether the probe was passed through necrotic tumor tissue. The tumor was very sharply circumscribed, firm in consistency, and white in color. The common bile duct above this tumor mass was markedly dilated, measuring 1 cm. in circumference.

The gall bladder showed markedly thickened walls and had one small pea-sized mulberry-like stone. Microscopically, the gall bladder showed evidence of previous inflammatory process. The microscopic sections of the tumor showed undifferentiated carcinoma.

The liver weighed over 3,000 gms., markedly enlarged, and extended approximately 6½ cm. below the right costal margin in the mid-clavicular line. The left lobe of the liver was almost completely displaced by tumor tissue which was firm and grayish-white in color, and in the right lobe there were also a few scattered tumor nodules with marked vascular prominence in the relatively normal tissues.

There was a serosanguineous peritoneal effusion (2,000 cc.). The spleen showed diffuse infarcts and benign nephrosclerosis. The arteries showed arterial calcification as did the aortic valve. The lungs showed congestion and edema, with minimum bronchial pneumonia.

IN SUMMARY: This is a case of carcinoma of the ampulla of Vater with extensive metastasis to the liver.

This tumor could possibly have arisen from either the common bile duct, the tympanic duct, or from the pancreatic tissue in the wall of the duodenum. We do not know the exact origin of the tumor.

*Instructor in Pathology, Medical College of Virginia, Richmond.

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MENTAL HEALTH

JOSEPH E. BARRETT, M.D.,
Commissioner, Department of Mental Hygiene and Hospitals.

Training School, Petersburg State Colony.

Frequently legislators, laymen and physicians ask, "What is the institution's training program for those mental defectives who return to society?" The following is a brief indication of this program at the Petersburg State Colony. The Training School at this Colony for feeble-minded boys and girls functions primarily to equip high grade defectives to take a place in society. Ninety-five per cent of our 250 population are delinquents. This latter fact emphasizes the need in the local community of early identification and a program at the local level that will enlighten the family concerning its problem and arouse the community to its responsibility to these children.

In general, here at Evergreen, we view our program as consisting of two objectives: (a) to lead these juveniles into a way of living that is consistent with accepted social ethics, and (b) to equip them with capacities that will enable them to maintain themselves in our social structure.

Concerning our first objective, we recognize that most of our youths come from inadequate homes where their needs have not been met; where, in many cases, they have developed a feeling of insecurity, possibly rejection; where there has been no satisfactory media of self-expression and where they have been often misunderstood by parents, teachers and associates. Failures and frustrations have created feelings of inferiority, antagonism, and discouragement in them. It is the reaction to such environment that induces them to compensate in unacceptable ways, bringing them into difficulty with parents and public authorities. So, our employees from staff head to cook's helper, at weekly conferences are counseled in the limitations of the retarded child (feeble-minded), and, especially, of the need for sympathetic understanding of the asocial defective. Hence, by expression and example every employee has a responsibility in shaping the atmosphere in which these children live.

The second general feature of our training at Petersburg State Colony consists of academic and vocational activities and a full recreational program. Below is an organizational outline of the program.

Here, in small groups of their own kind, in an atmosphere of kindliness and encouragement, where competition is not hard, the defective suffers few discouragements. Two to five years of such training will qualify most high grade delinquent defectives to take a place in society, provided they have some sympathetic supervision. We find that approximately six per cent of the asocial defectives require a second period of training.

SUPERINTENDENT

ACADEMIC SCHOOL	RECREATION		RELIGIOUS EXERCISES
(Principal and 5 teachers)	Outdoor	Indoor	(Petersburg Ministerial Union)
1st through 6th primary grades	Baseball-basketball	Gymnastics	
Audio-visual techniques used	Football-soccer	Assorted games	(Attendants)
Class in speech correction	Volley-ball	Radio	
Class in Human Relations	Horseshoe pitching	Moving pictures	
Class in Music—vocal—	Marbles, etc.	Mixed parties, dancing, etc.	
Bugle Corps, rhythm band			

Vocational School

(4 teachers plus other employees)

BOYS	GIRLS
Housekeeping—Boys tool shop	Housekeeping—beauty shop
Barbershop—Maintenance shop	Cooking classes—sewing
Laundry—farm and dairy activities	Laundry—dining-room and pantry, etc.
Storehouse and truck—dining-room and kitchen	

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PUBLIC HEALTH

L. J. ROPER, M. D.
State Health Commissioner of Virginia

The report of the Bureau of Communicable Disease Control of the State Department of Health for May 1950 as compared with the same month in 1949 and for the period of January through May 1950 as compared with the same period in 1949, is as follows:

	May 1950	May 1949	Jan.-May 1950	Jan.-May 1949
Typhoid and paratyphoid	4	8	28	32
Diarrhea and dysentery	213	181	1,387	1,280
Measles	626	3,406	1,638	18,827
Scarlet fever	55	40	505	357
Diphtheria	4	9	83	61
Poliomyelitis	2	1	15	10
Meningitis	9	6	69	46
Brucellosis	3	6	26	26
Rocky Mountain spotted fever	4	10	4	11
Tularemia	0	1	18	8

FURTHER ARMING TO FIHGT CONGENITAL SYPHILIS

In order to reduce venereal disease in general, and congenital syphilis in particular, the General Assembly has passed a prenatal law, which will become effective July 1, 1950.

The law provides that every physician or midwife attending a pregnant woman shall cause to be taken a blood sample within fifteen days of the first examination by the physician or midwife. The sample must be forwarded to a State Health Department laboratory, or to a department approved laboratory, for a serologic test for syphilis which is recognized and approved by the Health Department. In State Health Department laboratories tests will be made without charge.

The law states that all positive tests must be filed with the Bureau of Venereal Disease Control, where the information will be kept confidential and will not be published except in statistical form and without identification of persons.

For every birth or stillbirth, the physician, midwife, or other person legally authorized to attend the birth, must indicate in the proper place on the birth or still birth certificate whether, to his or her knowledge, the required test was made on the mother during her pregnancy. The certificate, however, must not state the result of the test.

If the first serologic test made indicates evidence of syphilis, the test must be repeated. A physical examination must be made and the patient's medical history obtained. If from this combined information the probability of syphilis still is indicated, the prospective mother must be informed in person as to the nature of the disease and the possibility of transmitting it to husband or baby.

In this case also, one copy of the laboratory report on each test must be sent to the State Health Department, Richmond 19, Virginia.

If the patient is delivered by a midwife, the midwife must make the statement on the birth or stillbirth certificate.

The next laboratory report will provide space to check "Prenatal". If using the present form, the word "Marriage" should be lined out and "Prenatal" written just above.

Future birth and stillbirth certificates will provide space to state whether the mother's blood was tested. On the present forms, however, the statement will be made just below the heavy line and to the right of "FOR MEDICAL AND HEALTH USE ONLY", on birth certificates, and on the back of the stillbirth certificates.

Failure to comply with the law constitutes a punishable misdemeanor.

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MEDICAL SOCIETY OF VIRGINIA

MEDICAL SERVICE COMMITTEE

An Approach to the Care of the Chronically Ill.

The care of the chronically ill is increasingly a matter of concern to the family physician. It has become a problem that often involves not only medical care and nursing, but a tremendous financial drain on the family. Therefore, the family doctor is interested in the prognoses as to the possible duration and the care needed in every case of chronic illness, which may be translated into terms of costs and maximum comfort to the patient.

In the past, the chronically ill have been cared for in the home, which is a most satisfactory arrangement; but changing conditions have changed our domestic situation, and often there is no one left at home to care for the patient. The home offers many advantages in personal attention and economic savings. However, there are many homes that cannot care for any sick person, and if it is to be a prolonged illness, something has to be done. This has brought about the nursing home and other facilities to care for chronic cases.

The nursing home is desirable and has many advantages, but the operation of a nursing home is predicated on financial returns to the operator, who must get reasonable returns for the services rendered. Nursing homes vary in cost but the old saying that "you don't get what you don't pay for" obtains. The nursing home is beyond the financial limit of many of these people, and in the absence of home care the physician is confronted with a real problem in making plans for the chronically ill person or aged person who is dependent on others.

In September 1949, the Patrick Henry Hospital for the Chronically Ill was opened. There is an interesting story behind this institution, which is the result of the good offices of several individuals who were interested in the care of the chronically sick persons in Newport News. The hospital is located on the site of Camp Patrick Henry in Warwick County. The united effort of the people in the community has made this institution possible. The need for medical care and welfare assistance has been united; fifteen counties and towns have joined the project on a per capita basis, which insures a ratio of beds to the contributing units. The hospital accepts both public and private cases. It has a section for colored cases, and all are accepted on the same basis without regard to race, creed, or financial status.

In January 1950, the hospital projected plans to open another unit in which cancer patients can be cared for. It is realized that this type of case will require more medical and nursing attention and more drugs than the ordinary case, and the cost of taking care of this type of case will have to be adjusted on the cost basis. It is a pioneer venture in Virginia in medical care of these unfortunate patients. It will serve a tremendous need, relieve the general hospital bed shortage and afford more beds for the acutely ill, relieve homes of a burden that many are unprepared for, and bring some comfort to the last days of a group of patients who face the inevitable.

The institution bears study as a means to offer reasonable medical service to this increasing group in our population. The plan is not perfect, but it is a working one which may help solve a problem which confronts large areas in rural Virginia. It is operated by a board of trustees and is not under government control. Each of the supporting or contributing units is represented on the board and is entitled to an equal vote in the administrative operation of the institution. The medical services are given by the Warwick County Medical Society.

MALCOLM H. HARRIS, M. D.
West Point, Virginia.

MEDICAL SOCIETY OF VIRGINIA

PUBLIC RELATIONS

HENRY S. JOHNSON, *Director*

A Challenge.

The following statement appears in the May 15th issue of the *United Mine Workers Journal*, in an editorial explaining the recent defeat of Senator Pepper in the Florida primary: "In 44 years of covering political campaigns in the Nation and in many States, your editor has never witnessed such effective and productive quiet solicitation of votes as demonstrated by Florida doctors, druggists, dentists, hospital staffs, insurance companies, and pharmaceutical representatives, aided and abetted by other professional men."

The editor goes on to state, "On the medical question, labor had better begin to think, because if resentment of the voters to National Medicine in one-third of the States proves as beneficial to reactionary candidates as in the case of Smathers, the problem of repealing the Taft-Hartley Law—so long as both are linked in the Truman program—will be three times as difficult."

The editor's analysis of Pepper's defeat in Florida is keen and acute, and makes it quite clear that the outcome there was the result of an all-out effort by professional men and women.

What Florida has done can be duplicated in Virginia, and New York, and California, and the other states. If the medical profession is regimented, it will be by default, because we fail to demonstrate our convictions in the hustings and at the polls.

I hope the success of our brethren in Florida will strengthen the faint-hearted, resolve the indecision of the doubters, and encourage those who are inclined to give up the struggle and drift with the tide.

The success of the medical and allied professions in Florida in defeating Pepper constitutes a challenge to the medical profession in every other state, and over the nation. What they can do, we can do.

JOHN T. T. HUNDLEY, M. D., *State Chairman*
A. M. A. Educational Campaign

WOMAN'S AUXILIARY TO THE MEDICAL SOCIETY OF VIRGINIA

President—MRS. C. E. HOLDERBY, Hilton Village
President-Elect—MRS. C. M. McCOY, Norfolk
Recording Sec'y—MRS. THOMAS S. CHALKLEY, Richmond
Corresponding Sec'y—MRS. J. W. CARNEY, Newport News
Treasurer—MRS. KALFORD W. HOWARD, Portsmouth
Parliamentarian—
MRS. THOS. N. HUNNICUTT, JR., Newport News
Historian—MRS. M. H. HARRIS, West Point
Publicity—MRS. HERMAN FARBER, Petersburg

Auxiliary News.

PETERSBURG

Much progress has been made toward the beginning of the newly formed Hospital Auxiliary for Petersburg Hospital. This unit got its start from our local Medical Auxiliary and we believe it will be one of our most beneficial achievements for the Community. Great interest has been shown and we hope it will continue to grow as it has been doing.

On March 23 we celebrated "Doctors' Day" with a delightful supper for all the Doctors and their wives.

Our regular April meeting was held in the Nurses' Residence at which time final reports on our rummage sale were made and it proved again to be a success.

The last meeting of the Auxiliary before summer was a luncheon May 23. Mrs. Holderby, the State President was our guest and gave a most interesting talk on "Health Education." No business was discussed at this meeting but during the summer our nominating committee of Mrs. Claiborne Jones and Mrs. C. S. Dodd will work on the new slate of officers for the fall.

H. LIVINGSTONE

ARLINGTON

The Auxiliary sponsored a luncheon and fashion show March 14th for the benefit of Arlington Hospital.

Doctors' Day, on March 30th, was celebrated by a square dance at the Washington Golf and Country Club.

At the April meeting, Dr. Claire Christman, Arlington school physician, explained the program of sex education planned for the Arlington County schools. Movies on sex education which will be used for the schools were shown.

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NORTHERN NECK

The Auxiliary met at The Tides Inn on May 18th, with the President, Mrs. William H. Matthews, presiding.

The program chairman, Mrs. A. B. Gravatt, introduced Mrs. C. E. Holderby, President of the Woman's Auxiliary to the Medical Society of Virginia, and Mrs. C. M. McCoy, President-elect of the Auxiliary. Mrs. Holderby gave a very interesting and informative talk on "Health Education".

Mrs. Paul Pearson was appointed delegate to the State Medical meeting to be held in Roanoke in October. Mrs. Motley Booker was appointed alternate.

The nominating committee for the new officers to be elected at the October meeting are Mrs. C. T. Peirce, Mrs. A. B. Gravatt and Mrs. M. B. Lamberth, Jr.

After the business meeting the members and guests enjoyed a cruise on The High Tide and then a banquet with the Doctors.

RICHMOND

On March 17, we had a Public Health program under the chairmanship of Mrs. J. David Markham, who introduced Dr. Edward M. Holmes, City Director of Public Health. His topic was *Richmond's Medical Care Plan.* The meeting was held as usual, in the Academy Building, and luncheon was prepared and served by Mrs. M. E. B. Owens, Jr., Mrs. Custis Coleman and Mrs. R. B. Lawrence.

Our Auxiliary since last fall has been furnishing two volunteers to the Tumor Clinic every fifth Thursday to act as guides and aides for the patients. Mrs. Fitzgerald Cavedo is chairman of the committee in charge.

The Richmond Auxiliary realized $500 net on its annual money-making project in April. This was a benefit tea at Paxton, beautiful and historic home of Mr. and Mrs. Elam Tanner. Mrs. William H. Harris and Mrs. Charles Troland served as co-chairmen.

The $500 was given to Sheltering Arms Hospital.

At the final meeting of the Auxiliary on May 19, the new officers were installed by Mrs. Latane Flanagan, Parliamentarian; Mrs. Frederick Finch, President; Mrs. Randolph Hoge, President-Elect; Mrs. Custis Coleman, Recording Secretary; Mrs. W. Henry Copley, Corresponding Secretary and Mrs. William H. Cox, Treasurer.

MELBA C. FINCH, *Editorial Chairman*
(MRS. FRED L.)

NORTHAMPTON-ACCOMAC

The ladies were entertained on April 11th at the home of Mrs. Rooker J. White of Keller. Mrs. C. E. Holderby, State chairman, and Mrs. C. M. McCoy, president-elect, were guests of the Auxiliary. Mrs. E. H. Trower presided at the meeting which followed luncheon. Mrs. S. K. Ames reported briefly on the work of the tumor clinic which is held twice a month at the Nassawadox Hospital. Following the business, an informative talk was given by Mrs. Holderby on the General Medical Picture with emphasis on the present day health program.

An invitation was accepted for the Auxiliary to have its July picnic again this year with Mrs. W. L. Cosby at her Silver Beach cottage.

BOOK ANNOUNCEMENTS

You and Your Heart. A Clinic for Laymen on the Heart and Circulation. By H. M. MARVIN, M.D., and T. DUCKETT JONES, M.D., IRVINE H. PAGE, M.D., IRVING S. WRIGHT, M.D., DAVID D. RUTSTEIN, M.D. Foreword by Paul D. White, M.D. Random House, New York. 1950. xi-306 pages. Illustrated. Cloth. Price $3.00.

Breast Deformities and Their Repair. By JACQUES W. MALINIAC, M.D., Ciinical Professor of Plastic Reparative Surgery and Associate Attending Plastic Surgeon, New York Polyclinic Medical School and Hospital; Attending Plastic Surgeon, Sydenham Hospital, New York. Grune & Stratton, New York. 1950. ix-193 pages. Illustrated. Cloth. Price $10.00.

Psychiatric Sections in General Hospitals. By PAUL HAUN, M.D., MeD. Sc. D., Assistant Professor of Psychiatry, Georgetown University Medical School. An Architectural Record Book. F. W. Dodge Corporation, New York. 1950. 80 pages. Cloth. Price $4.00.

Amusing Quotations. For Doctors and Patients. Edited by NOAH D. FABRICANT, M.D. Grune & Stratton, Inc., New York. 1950. viii-149 pages. Cloth. Price $3.00.

Sex Without Fear. By S. A. LEWIN, M.D. and JOHN GILMORE, Ph.D. Foreword by Sarah K. Greenberg, M.D. Lear Publishers, New York. 1950. 121 pages. Illustrated. Cloth. Price $3.00.

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Woman's Surgeon. The Life Story of J. Marion Sims. By SEALE HARRIS, M.D. With the collaboration of FRANCIS WILLIAMS BROWIN. The Macmillan Company, New York 1950. xx-432 pages. Illustrated. Cloth. Price $5.00.

It is now nearly one hundred years since Marion Sims published his first article upon vesico-vaginal fistula in January 1852, and sixty-seven years since his death from coronary occlusion, November 13, 1883. With the passing years his stature is increasing. At the last meeting of the American Gynecological Society (May 12, 1950) Dr. Joseph Baer used the story of his life and accomplishments for the presidential address. It is high time that there be definitive biography of this pathfinder in medicine. His autobiography is not free from errors and the egotism of the man makes against it. The short biographies that have appeared from time to time since his obituaries, are mainly eulogies. Seale Harris, while evidently an admirer, has given us a true full length picture of the man. While giving him due credit for his many accomplishments, he does not minimize his faults.

Thomas Addis Emmet called Sims the Father of American Gynecology and Paul F. Munde the Father of Modern Gynecology, Seale Harris calls him the Medical Prima Donna of the 19th Century. All three titles are correct but the latter sums up in a phrase the true character of the man. No man had truer or more loyal friends and no man had bitterer enemies. These, in all fairness, were the result of his own temper and egotism. Everyone with whom he worked became an enemy: Bozeman, because he improved Sims' suture; W. O. Baldwin, a fellow partner in a drugstore in Montgomery, on account of some finances; Peaslee, Emmet and Thomas, fellow members of the Staff of the Woman's Hospital, because of disagreement about rules in the hospital. With casual acquaintances and those with whom he was not too closely associated he showed great charm. He hobnobbed with queens and princesses, kings and common men on equal terms. His most engaging characteristic was his lifelong devotion to his wife. Theresa Jones, thoroughbred as she was, loved him when he was a callow, unpromising youth without ambition. She followed him devotedly in sickness and poverty and in his successes and wealth in the swamps of Alabama and the courts of Europe. In all these extremes, she exhibited equanimity and poise, and did much to keep her husband on an even keel, and Sims, to his everlasting credit, requited this love in full measure. Theresa Sims is by rights a great medical heroine. Harris tells her story with sympathetic understanding.

Sims' prima-donnaish vagaries took every possible form. He was tried and censured by the New York Academy of Medicine for violating the code of ethics of the American Medical Association and, shortly thereafter, was elected president of that very Association. In his presidential address he discussed syphilis and called a spade a spade. He greatly shocked his British conferees by advocating anesthesia during coitus in certain aggravated cases of vaginismus. Undoubtedly he was a genius, and a medical prophet, and yet he published an account of curing trismus nascentium by turning the infant to its side. He jealously guarded the nature of the sicknesses of the Empress Eugenie and that of the Duchess of Hamilton, but discussed that of Adelina Patti, after she had gone to Sir James Y. Simpson for treatment. He did not hesitate to advise, through the newspapers, President Garfield's surgeons how to treat abdominal wounds.

However, his achievements far outweighed his vagaries. He was the Father of Gynecology and taught the world how to treat gunshot wounds of the abdomen. He was one of the first to operate for gall stones. He was the founder of the first hospital for women and one that has continued to this day to be a center for investigation of woman's diseases, and he was largely instrumental in founding the first hospital for the investigation and cure of cancer. Such a man can be forgiven a few vagaries. The *"Woman's Surgeon"* has an extensive bibliography and a good index which makes it a useful reference book as well as one well worth reading.

M. P. R.

Harvey Cushing. Surgeon, Author, Artist. By ELIZABETH THOMSON. Foreword by Dr. John J. Fulton. Volume #13, Life of Science Library. Henry Schuman, Incorporated, New York. 1950. Illustrated. 347 pages. Cloth. Price $4.00.

John Fulton who wrote a more detailed biography of Cushing (1946) says in his foreword to Miss Thomson's biography that there is a place for the briefer work just as was for a briefer Life of Osler after the monumental one by Harvey Cushing. My own experience fully bears this out. I have all four books. I read the longer Osler but not Mrs. Reid's

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volume. I read Fulton's Cushing as far as the Hopkins' days, when I was interrupted and I have never gotten around to finishing it. After reading Miss Thomson's Cushing, I feel that I must read the longer biography. She tells her story well. Cushing was born in Cleveland of New England ancestry, and it was only natural that he went to Yale for his college training. He went to Harvard for his medical degree and, after serving as interne, or "house pupil", as I believe the proper term is at the Massachusetts General Hospital, went to Hopkins for his surgical training under Halstead. Here he developed a new field in surgery. In Baltimore, he lived next door to Osler, at No. 3 West Franklin Street. He returned to Harvard as Surgeon-in-Chief at the Peter Bent Brigham and finally to Yale as Professor of Neurology and, after reaching retirement age, he became Director of Studies in the History of Medicine, which position he held at the time of his death. His matchless collection of books, along with those of his friend, Arnold Klebs, are housed at the Yale Medical School in a beautiful building designed by his friend Grosvenor Atterbury.

Between his graduation in medicine at Harvard and his death at Yale, he made many trips to Europe and met most of the important people in medicine. The accounts of these trips are as full of interest as a travelogue. When I entered the Medical School, Cushing was away in Europe and Mitchell was resident surgeon. The story we boys heard was that Cushing had been given a leave of absence to study physiology of the brain under Sherrington. When he came back he wanted his place back but Mitchell said that he had no idea of giving up the residency. As both Cushing and Mitchell were noted for their vile tempers we were interested in the outcome of the difficulty, rumors of which we heard from time to time. Mitchell retained the surgical residency and a dog house was built for Cushing as a compromise and given the grandiloquent name of Huntarian Laboratory. He taught us surgery on the dog and was popular with the boys. I can see him now drawing at the blackboard with both hands. (When he had completed his residency, Mitchell located in Washington, D.C. Years later he knocked down a Congressman on the golf course because the Congressman had driven into him, or *vice versa*.)

Miss Thomson has given us a true picture of Cushing. She does not minimize his faults, of which lack of control of his temper was the chief and she has given us a story that anyone, be he medical man or not, will enjoy reading.

M. P. R.

Proceedings of the First Clinical ACTH Conference. Edited by JOHN R. MOTE, M.D., Medical Director, Armour Laboratories. 178 Contributors. The Blakiston Company, Philadelphia. 1950. 624 pages with 414 Illustrations. Cloth. Price $5.50.

This volume comprises the complete report of 52 papers presented at the First Clinical ACTH Conference held in Chicago in October 1949 under the auspices of Armour and Company. This conference was held to bring together all the investigating groups working with ACTH for exchange of data and to arrive at an overall picture of the experimental and clinical results of ACTH administration. The papers are presented as reports of projects in progress and not as final conclusions. The work with ACTH has progressed so rapidly that it seemed highly desirable to make this information generally available as speedily as possible. The papers included have not been previously published.

The various reports cover a wide range of subjects, from observations on metabolic and other effects of ACTH to clinical reports on its use in a large variety of diseases. The data are of a preliminary sort and no final conclusions are presented but it is obvious that stimulation of the adrenal cortex by ACTH produces important effects in many apparently unrelated diseases.

For the investigator in metabolic or endocrinologic disease this volume is indispensable. For the clinician who wishes to keep abreast of the rapid progress in this field these reports afford an up-to-date summary which is not elsewhere available. For the casual reader whose interest in ACTH has been stimulated by newspaper publicity this book is a comprehensive presentation of the present factual data.

It must be remembered that ACTH is not generally available. The limitations of production will restrict its use to the investigative field for sometime to come. These papers are a noteworthy contribution to the study of the adrenal cortex in disease and offer hope of considerable therapeutic usefulness for ACTH. But the physician must not expect to find here an agent that he can use in the daily problems of practice.

H. St. G. T., JR.

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EDITORIAL

Sir Ronald Ross (1857-1932)

BEFORE Laveran and Ross, there were many attempts to prevent malaria. Empedocles (c. 490-430 B.C.) is said to have checked an epidemic in Sicily by draining a swamp and since then many have believed that night air and paludal surroundings were not salubrious. Such empiric knowledge, however, was not impressive enough to make the prophylaxis of malaria effective. Even Laveran's discovery of the causative agent of malaria left a gap that had to be filled before his discovery could be used in the prevention of this world wide disease. It enabled one to make an accurate diagnosis and it stimulated research, but until it was known how the parasite gained access to the human body, means of prevention were entirely empiric and amounted to little. This gap was supplied by Sir Ronald Ross.

Ross was born at Almora, India, the eldest of Gen. (Sir) Campbell Claye Grant Ross' ten children. He was sent to England for his schooling. At first he wanted to be an artist but, on his father's persuasion, he studied medicine. Upon graduating from St. Bartholomew's Hospital he failed his L.S.A. After serving in the navy several years, he passed his L.S.A. in 1881 and entered the Indian Medical Service. Here he did nothing of great moment and devoted his spare time to the study of literature. After seven years, on his first leave home, he worked for his Diploma of Public Health, and became an expert bacteriologist. In 1894 when again on leave he met Sir Patrick Manson, who in 1879 had demonstrated that Filaria sanguinis hominis was transmitted by the mosquito. Manson inspired Ross to undertake this study.

The idea that mosquitoes carried malaria was not new. The Sanskrit Susruta has something to say on the subject. The same theory was advanced for yellow fever by Josiah Clark Nott of South Carolina, Louis Daniel Beauperthy, and Carlos Juan Finley. A number of Italians, notably Lancisi, had advanced this hypothesis for malaria. Albert F. A. King was an advocate of the same theory in 1883 and Laveran himself entertained the same belief, but that was not proof, and proof was needed for practical results. It was not until 1879 that Ross succeeded in finding the pigmented forms of the plasmodium in the dappled (anopheles) mosquito, and using birds he worked out the life cycle of the organism. His work was quickly confirmed by a number of Italian investigators as well as by Thayer, McCallum and Opie in this country.

In 1899 he retired from the Indian Service, and after a visit to West Africa to study malaria-bearing mosquitoes, devoted himself to research and teaching. He became lecturer and then professor of Tropical Medicine at Liverpool University. In 1913 he became, in addition, physician for tropical diseases at King's College, London. When in 1926 the Ross Institute and Hospital for Tropical Diseases at Putney was founded in his honor, he became its first director-in-chief.

Ross received many other honors. In 1902 he was awarded the Nobel Prize for Medicine. In 1911 he received K. C. B., and in 1918, a K.C.M.G. He was a Fellow of the Royal Society and was the recipient of its Royal Medal. He was editor of *Science Progress*.

Lord Moynihan called him a medical truant because of his success in literature and mathematics. He published *Poems, Fables and Satires, Lyra Modulata, Sprit of Storm, Child of Ocean,* and *Revels of Orsera* as well as his *Memoirs*.

This is the 14th of a series "Doctors for whom the public should be thankful."

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Brookfield, Inc.

ONE of Virginia's oldest eleemosynary institutions is comparatively unknown. This is readily understood when its function—the rehabilitation of unmarried, pregnant girls—is considered.

The problem of illegitimacy is as old as man, and its solution does not seem to be in sight. The church and the law have each tried its hand and have failed. The educators do not seem to be meeting with any startling success. If society can not prevent out-of-wedlock pregnancy, it should at least make the lot of the unfortunate victims easier. As it is, society turns its back on the poor girl, and all too frequently the girl's own family turns against her. Several possibilities are open to her. She may have a criminal abortion performed. This is usually the advice of her "boy friend". This is both dangerous and criminal. The girl's natural impulse is suicide. If she carries her pregnancy to term her obstetric care is apt to be of inferior quality, whereas she needs the best.

Some 70 years ago, Dr. W. W. Parker organized the Spring Street Home in Richmond for unmarried mothers. In 1932, Dr. A. Spiers George left a handsome legacy to the Spring Street Home. When the institution moved from Spring Street to its present location on Broad Street Road, the name was changed to Brookfield, Inc. In a measure, it is a monument to these two physicians.

The Home has always been blessed by a lady board of managers of the highest type. The present plant consists of 90 acres of woodland and farm land and a well planned fire-proof house, with an up-to-date delivery room and nurseries and homelike quarters for the mothers. The girls are assigned, in rotation, duties in the home and the nursery as well as outside work in the garden. This makes them feel that the home is theirs and they keep it spotless. Services are conducted in the Chapel every Sunday by Richmond ministers of different denominations. Every effort is made in this busy, healthful and helpful atmosphere to "graduate" the girls as useful members of society. Not infrequently they are given vocational training in the late puerperium and a surprisingly large number of them turn out well, which fills the superintendent and her staff with joy and satisfaction.

SOCIETY PROCEEDINGS

Williamsburg-James City County Medical Society.

The regular meeting of the Society was held May 12, at Williamsburg, Dr. Joseph E. Barrett, President, in the Chair. After dinner the business meeting was held, at which time a letter from the Medical Society of Virginia regarding a proposed series of post-graduate study sessions was read. The Society members expressed interest and approval, and the secretary was instructed to write a letter, indicating the desire of this Society to participate in such series. A letter from the Medical Society of Virginia was also read regarding the procedure for collection of American Medical Association dues.

The President also reported on a letter received regarding an alleged grievance against a member of the local society and asked confirmation of the grievance committee ad interim. The committee named was approved by the Society.

The President reported to the Society a plan for a memorial plaque, to be placed in the old church at Jamestown, honoring one of the earliest physicians of the Virginia Colony. A committee of the State Medical Society, consisting of Dr. Chester Bradley of Newport News, Dr. Wyndham Blanton of Richmond, Dr. Joseph E. Barrett, of Williamsburg, have been selected to arrange for this. The ceremony is being tentatively planned for July,

with the program to be arranged for by the local Medical Society and the Jamestown officials.

A letter was read by the President regarding a report on the Committee of the State Medical Society on broadening the eligibility for membership in the Medical Society of Virginia and its constituent county societies. This letter requested the opinion of the local societies to help guide the action of the House of Delegates at the annual meeting in Roanoke, in October. This matter was discussed at length, but action was deferred on it until the called meeting to be held in June.

The Society approved a proposal to reorganize a Woman's Auxiliary and instructed the Secretary to so advise the State Auxiliary principals.

Dr. Linwood Farley, the Health Officer, announced the opening in Richmond of a Diagnostic Clinic for Heart Disease Cases and explained the admission procedure and scope of the clinic work.

Dr. Thomas D. Walker of Newport News was a guest of the meeting and described briefly the newly opened Chronic Disease Hospital, a joint enterprise of Newport News, Warwick County and a number of other cities and counties in the Peninsula area.

The following officers were elected for the ensuing year: President, Dr. Eleanor H. Beamer Maxwell; Vice-president, Dr. B. I. Bell; Secretary-treasurer, Dr. Granville L. Jones.

After the business meeting sound motion pictures on cardiac physiology, with particular reference to pulse pressures and the electrocardiograph, through the courtesy of Searle Company, were presented by their Mr. Dillard.

A total of eighteen members and guests were present.

GRANVILLE L. JONES, *Secretary*

The Southwest Virginia Medical Society

Met in Abingdon on May the 4th, with Dr. Harry M. Hayter of that city, the president, in the chair. At the afternoon session, papers were given by:

Dr. James L. Chitwood, Pulaski—The Antibiotics.

Dr. Thomas C. Todd, Bristol—Some Concepts on the Treatment of Bleeding in the Third Trimester of Pregnancy.

Dr. Frank Sutterlin, Bristol—Human Infertility.

Dr. Robert L. McMillan (guest), Winston-Salem, N. C.—The Use of Quinidine in Auricular Fibrillation.

At the business session which followed, delegates and alternates to the annual meeting of the State Society were elected, and a Woman's Auxiliary was formed with the following officers: President, Mrs. W. A. Porter, Hillsville; vice-president, Mrs. R. L. Hillman, Emory; secretary, Mrs. James P. King, Radford; and treasurer, Mrs. D. S. Phlegar, Blacksburg.

A social hour and banquet followed after which Dr. Samuel P. Asper, Jr., of Johns Hopkins University School of Medicine, spoke on Recent Advances with Propylthiouracil, Radioiodine and ACTH.

There were 80 in attendance in the afternoon and 136 at the banquet and night program. The next meeting of the Society will be hold in Radford in September, the exact date to be announced.

Dr. Andrew F. Giesen of Radford is secretary of the Society.

Norfolk County Medical Society.

At the annual meeting of the society, the following officers were elected for the year beginning June 1950: President, Dr. George Schenck; president-elect, Dr. Walter P. Adams; vice-president, Dr. Eugene L. Lowenberg; secretary, Dr. K. K. Wallace; and treasurer, Dr. J. Franklin Wallace. All are of Norfolk. Delegates and alternates to the Roanoke meeting of the State Society were also named.

Virginia Peninsula Academy of Medicine.

The last regular meeting of the Academy before summer recess was held at the Veterans Administration Hospital, Kecoughtan, May 15th, with an attendance of sixty physicians. Dr. William Parson, professor of medicine at the University of Virginia, conducted a pathological conference. Officers were elected for the coming year as follows: Dr. William A. Read, president; Dr. Will J. Tankard, vice-president; and Dr. Barnes Gillespie, secretary-treasurer.

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NEWS

Medical College of Virginia Commencement.

The one hundred thirteenth commencement exercises of the Medical College of Virginia were held on June 6th at The Mosque in Richmond. The Commencement Address was delivered by Dr. Robert Archibald Lambert, Formerly Associate Director for the Medical Sciences, Rockefeller Foundation. An honorary degree of Master of Science in general medicine was awarded to Dr. James D. Hagood of Clover. This is the first time the College has awarded this degree and it is believed it is the first time that such a degree has been awarded anyone. Admiral Lewis L. Strauss of Culpeper County was also awarded the honorary degree of Doctor of Science.

Alumni reunions were held on the 5th and 6th. The dedication of the War Memorial Alumni Building was held on the 5th, and this was followed by a social hour and the alumni banquet reunion. The new alumni headquarters was purchased and remodeled as a memorial to graduates of the Medical College of Virginia and the University College of Medicine who died in any war in which the United States took part. The building is the former Maury House at 1105 East Clay Street.

There were ninety-two graduates in medicine; forty-six in dentistry; fifty-two for bachelor of science in pharmacy; six for bachelor of science in nursing education; thirteen for bachelor of science in nursing; thirty-three graduates in nursing; forty-six in physical therapy; four for master of science in physical therapy; one master of science in bacteriology; and one master of science in physiology. The following are graduates in medicine with their hospital appointments:

MEDICAL COLLEGE OF VIRGINIA, Richmond: Drs. Wyndham Bolling Blanton, Jr., Richmond; Russell Vernon Bowers, Richmond; William Wesley Gillespie, Boissevain; John Titus Glick, Jr., Bridgewater; James King Hall, Jr., Richmond; Thomas Bowles Hedrick, Roanoke; Russell Edward Herring, Jr., Richmond; Elma Adolphus Morgan, Jr., Portsmouth; Helen Luella Morton, Richmond; John William Painter, Sylvatus; John William Powell, Richmond; Paxton P. Powers, Staunton; George Gordon Ritchie, Jr., Richmond; Thomas Carroll Royer, Morgantown, W. Va; Harvey Brown Ryder, Monterey; Eustace Henry Smith, Valley Center; John Earle Smith, Highland Springs; John Moore Stoneburner, Richmond; Allan Meyer Unger, Richmond; and William Philip Wagner, Richmond.

STUART CIRCLE HOSPITAL, Richmond: Dr. Eileen Agnes Thorpe, Pawtucket, R. I.

UNITED STATES NAVAL HOSPITAL, Portsmouth: Drs. John Morgan Foley, Fairmont, W. Va; David Charles Forrest, Roanoke; and John Bertrand Rose, Jr., Richmond.

ROANOKE MEMORIAL AND CRIPPLED CHILDREN'S HOSPITAL, Roanoke: Drs. William Burdette Adams, Centralia; Evelyn Patton Daniel, Abingdon; and Griffith Boyd Daniel, Louisa.

LEWIS-GALE HOSPITAL, Roanoke: Drs. Robert Clifton Hughes, Waverly; and Ralph Mason Scott, Parksley.

JEFFERSON HOSPITAL, Roanoke: Dr. Robert Catchings Moore, Jr., Blacksburg.

NORFOLK GENERAL HOSPITAL, Norfolk: Drs. Leroy Parry Bragg, Richmond; Hugh Pearson Fisher, Jr., Quinton; Donald Stover Myers, Bridgewater; and Grady Monroe Strickland, Jr., Clayton, Ala.

DEPAUL HOSPITAL, Norfolk: Dr. James Reuben Holsinger, Broadway.

UNITED STATES MARINE HOSPITAL, Norfolk: Dr. Archie Carlisle Stanton, Jr., Norfolk.

JAMES WALKER MEMORIAL HOSPITAL, Wilmington, N. C.: Dr. George Minson Bullard, Roseboro, N. C.

CHARLOTTE MEMORIAL HOSPITAL, Charlotte, N. C.: Drs. Marion White Fisher, Wilmington, N. C.; and Forrest Edwards Peeler, Belwood, N. C.

CITY MEMORIAL HOSPITAL, Winston-Salem, N. C.: Dr. Robert McClain Jamison, Covington.

REX HOSPITAL, Raleigh, N. C.: Dr. William Harold Johnson, Castlewood.

OHIO VALLEY GENERAL HOSPITAL, Wheeling, W. Va.: Drs. Earl Douglas Allara, Iaeger, W. Va.; John Jenkins Coogle, Rivesville, W. Va.; Robert Calton Cowan, Jr., Morgantown, W. Va.; William Vickers Crabtree, Wellsburg, W. Va.; and Leo Franklin Sherman, Beckley, W. Va.

ST. JOSEPH'S HOSPITAL, Parkersburg, W. Va.: Dr. Ira Connolly, Jr., Parkersburg, W. Va.

CHARLESTON GENERAL HOSPITAL, Charleston, W. Va.: Drs. Dorsey Carlyle Gamsjager, Grafton, W. Va.; Ward Harshbarger, Jr., St. Albans, W. Va.; Harvey Achiles Martin, Keyser, W. Va.;

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and Joseph Alderson Smith, Sutton, W. Va.

ST. MARY'S HOSPITAL, Huntington, W. Va.: Dr. Philip James Winn, IV, Fork Union.

THE BROOKLYN HOSPITAL, Brooklyn, N. Y.: Dr. Robert Andrew Abernathy, Jr., Lynchburg.

UNITED STATES MARINE HOSPITAL, Staten Island, N. Y.: Dr. Nicholas Ivan Ardan, II, Niagara Falls, N. Y.

STRONG MEMORIAL HOSPITAL, Rochester, N. Y.: Dr. Robert Thomas Cauthorne, Richmond.

NEW YORK HOSPITAL, New York, N. Y.: Dr. Luke Ralph Rader, Richmond.

CITY HOSPITAL, Welfare Island, N. Y.: Dr. Charles Nelson Richards, Jr., Lynchburg.

THE CHARITY HOSPITAL OF LOUISIANA, New Orleans, La.: Dr. Thomas William Ayres, Richwood, W. Va.

SINAI HOSPITAL, Baltimore, Md.: Dr. William Maury Bangel, Portsmouth.

UNITED STATES NAVAL HOSPITAL, Bethesda, Md.; Dr. Thomas William Tusing, New Market.

GORGAS HOSPITAL, Canal Zone: Dr. William Walter Beckner, Jr., Rockbridge Baths.

JACKSON MEMORIAL HOSPITAL, Miami, Fla.: Drs. Douglas Willits Carr, Norton; and Emery Highsmith Honeycutt, Clinton, N. C.

CINCINNATI GENERAL HOSPITAL, Cincinnati, O.: Drs. Kenneth Lawrence Clark, Charleston, W. Va.; Thomas Leland Largen, Hillsville; Jane McMullen, Wollsburg, W. Va.; and Andrew Jim Pasquale, Williamson, W. Va.

STARLING-LOVING UNIVERSITY HOSPITAL, Columbus, O.: Dr. Robert Noble Counts, Portsmouth, O.

BROOKE GENERAL HOSPITAL, San Antonio, Tex.: Dr. Thornton Ritenour Cleek, Staunton.

JOHN SEALY HOSPITAL, Galveston, Tex.: Dr. Lee Weldon Shaffer, Jr., Parkersburg, W. Va.

UNITED STATES NAVAL HOSPITAL, Charleston, S. C.: Dr. Martin Cade Covington, Sanford, N. C.

ROPER HOSPITAL, Charleston, S. C.: Dr. Helen Elizabeth Hall, Raleigh, N. C.

GREENVILLE GENERAL HOSPITAL, Greenville, S. C.: Dr. Leroy Webb, Richmond.

PRESBYTERIAN HOSPITAL, San Juan, P. R.: Dr. Alberto Manuel Dominguez, Cayey, P. R.

UNITED STATES NAVAL HOSPITAL, Philadelphia, Pa.: Dr. Hugh Fitzpatrick, III, Richmond.

ROBERT PACKER HOSPITAL, Sayre, Pa.: Dr. Charles Melvin Garrett, Jr., Weston, W. Va.

ALLENTOWN GENERAL HOSPITAL, Allentown, Pa.: Dr. Florine Kirk Hampton, Kermit, W. Va.

SEWICKLEY VALLEY HOSPITAL, Sewickley, Pa.: Dr. Eugene Ernest Mihalyka, Baltimore, Md.

BRYN MAWR HOSPITAL, Bryn Mawr, Pa.: Dr. Lawrence Owen Snead, Jr., Richmond.

PHILADELPHIA GENERAL HOSPITAL, Philadelphia, Pa.: Dr. Mary Elizabeth Zumbrunnen, Parkersburg, W. Va.

MERCY HOSPITAL, Pittsburgh, Pa.: Dr. Genevieve June Thomas, Roanoke.

WALTER REED GENERAL HOSPITAL, Washington, D. C.: Drs. John William Hesen, Jr., Morgantown, W. Va; and Jay Nevin Wemple, Long Island, N. Y.

ST. ELIZABETH'S HOSPITAL, Washington, D. C.: Dr. Donald Gabriel Siegel, Chicago, Ill.

FITZSIMONS GENERAL HOSPITAL, Denver, Colo.: Dr. Joseph Haven Hoge, Jr., Pembroke.

MIDDLESEX HOSPITAL, Middlesex, Conn.: Dr. Ellen Katherine Johnson, Enfield, N. C.

UNIVERSITY OF OKLAHOMA HOSPITALS, Oklahoma City, Okla.: Dr. James Laster, Richmond.

FRENCH HOSPITAL, San Francisco, Calif.: Dr. Margaret Lee Masters, Canton, China.

UNIVERSITY OF MINNESOTA HOSPITALS, Minneapolis, Minn.: Dr. Mathew E. O'Keefe, Council Bluffs, Ia.

MASSACHUSETTS GENERAL HOSPITAL, Boston, Mass.: Dr. Stuart Ragland, Jr., Richmond.

UNITED STATES MARINE HOSPITAL, Boston, Mass.: Dr. Robert Dayton Shreve, Glenville, W. Va.

HACKENSACK HOSPITAL, Hackensack, N. J.: Dr Irma Hope Rivera, Santurce, P. R.

Alumni Association, Medical College of Virginia.

At the meeting of the alumni on June the 5th, Dr. Donald S. Daniel was installed as president, Dr. Roshier W. Miller was elected secretary, and Dr. Harvey B. Haag as treasurer; all are of Richmond. Vice-presidents are: for Medicine, Dr. Ramon Saurez, Puerto Rico; for Dentistry, Dr. Richard Lee Simpson, Richmond; for Pharmacy, R. R. Rooke, Richmond; and for Nursing, Mrs. Sarah Daniel Faber, Lawrenceville.

Scientific Exhibits.

Very excellent and ample space for the Scientific Exhibits at the Hotel Roanoke has been assigned to the Exhibit Committee. The same decorating firm which furnished the booths last year will again

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service us. Those who saw the exhibits last year will remember the same equipment is furnished as is used at the A. M. A. Viewing boxes for transparencies are also furnished which are fitted with fluorescent lights.

In order to secure desirable space, all exhibitors are requested to write the Chairman of the Scientific Exhibit Committee, Charles H. Peterson, M.D., 603 Medical Arts Building, Roanoke, for application blanks as soon as possible. This will enable the committee to "block out" the space more efficiently.

Dr. Allen W. Freeman,

A native of Lynchburg, but now of Baltimore, was in June awarded the honorary degree of Doctor of Science by the University of Richmond, from which he was graduated in 1899. Dr. Freeman retired at the age of 65 as professor of Public Health Administration at Johns Hopkins University and is now consultant in health administration for the Maryland State Department of Health. He makes his home in Baltimore.

Dr. E. L. Henderson

Of Louisville, Ky., president of the American Medical Association, was the guest speaker in Roanoke on May the 24th, at the 29th annual meeting of the staff of Jefferson Hospital. He gave an illustrated talk on the activities of the American Medical Association.

McIntire Tumor Clinic,

At the University of Virginia Hospital in Charlottesville, was made possible by an endowment fund of $100,000 given by Paul Goodloe McIntire, a native of Charlottesville, who now lives in New York. It is a memorial to his second wife, who died of cancer.

The clinic staff is composed of Dr. H. Rowland Pearsall, of the medical staff of the Hospital, who is director; Dr. W. H. Parker, of the surgical department, chairman of the Tumor Clinic Board; Dr. George Cooper, Jr., of the radiology department; Dr. Charles Lupton, of the pathology staff; Dr. Norman Thornton, obstetrics and gynecology; Dr. Byrd Leavell of the medical department, and about 10 members of the University Hospital's resident medical staff. Various medical specialists are also utilized in the diagnosis and treatment of cancer patients.

An average of approximately 45 patients a week visit the clinic, most of whom get their treatment at the University Hospital, and some are referred elsewhere for the convenience of the patient.

The late Dr. W. H. Goodwin, a professor of clinical surgery at the University was the clinic's first director In September, 1936, Dr. Goodwin retired because of illness. He was succeeded by Dr. Edwin P. Lehman, Director of the Department of Surgery of the University, who resigned in 1943 but has continued to serve as a consultant. He was succeeded by Dr. Parker, who served from 1943 to 1949.

What started as one memorial, with the gift from Mr. McIntire, has, through various gifts and bequests, developed into a memorial to many people. And as the years have passed the clinic has grown, and served more and more cancer victims, giving them hope and, in many instances, cure.

The fourteen tumor clinics in Virginia, which are approved by the American College of Surgeons, are located in Charlottesville, Alexandria, Bristol, Newport News, Nassawadox, Danville, Lynchburg, Clifton Forge, Norfolk, Richlands, Richmond, Petersburg, Roanoke, and Winchester.

Dr. Charles L. Outland,

Richmond, has been appointed as a member of the Joint Committee on Health Problems in Education of the American Medical Association and the National Education Association for a term of five years.

Governor of American College of Physicians for Virginia.

At the annual meeting of the American College of Physicians in Boston in April, Dr. Charles M. Caravati of Richmond was elected Governor for the State of Virginia, succeeding Dr. J. Edwin Wood of Charlottesville.

Dr. Horsley President of Virginia Academy of Science.

At the annual meeting of the Academy, held in Roanoke on May 12th, Dr. Guy W. Horsley, Richmond, was elected president. The annual J. Shelton Horsley Research Award, named in honor of his father, a founder and president of the Academy, was presented to Dr. Erling S. Hegre, associate professor of anatomy at the Medical College of Virginia. This award was presented for his developing motion picture photography of serial slicing of em-

bryos which fellow-scientists said will open up new fields of research in embryology. It has taken him five years to perfect the technique.

Mr. Foley F. Smith, Richmond, was re-elected secretary-treasurer, and Dr. E. C. L. Miller, Richmond, was also re-elected secretary-treasurer emeritus.

The Radford Community Hospital

Will hold its annual banquet and scientific program on July 20th at 7:00 P.M., at the Governor Tyler Hotel, Radford. Guest speakers will be Dr. Franklin Carter, Clinical Professor of Surgery of New York University, and Dr. Harold W. Brown, Professor of Clinical Ophthalmology of New York University. This is the sixth annual program sponsored by the staff of the hospital and guests will be doctors throughout the Southwestern Virginia area.

Married.

Dr. Howard Russell Masters of Richmond and Miss Sarah Elizabeth Huneycutt of Appalachia and Richmond, May 13.

Dr. Francis M. Taylor

Has been elected president of the Petersburg (Va.) Lions Club for the new term of office beginning June.

Research Fellowships.

The American College of Physicians announces that a limited number of Fellowships in Medicine will be available from July 1, 1951—June 30, 1952. These are designed to provide an opportunity for research training either in the basic medical sciences or in the application of these sciences to clinical investigation. They are for the benefit of physicians who are in the early stages of their preparation for a teaching and investigative career in Internal Medicine. Assurance must be provided that the applicant will be acceptable in the laboratory or clinic of his choice and that he will be provided with the facilities necessary for the proper pursuit of his work. The stipend will be from $2,200 to $3,200.

Application forms will be supplied on request to The American College of Physicians, 4200 Pine Street, Philadelphia 4, Pa., and must be submitted in duplicate not later than October 1, 1950. Announcement of awards will be made November 1950.

Dr. Reynold C. Siersema,

Associate professor of surgery at the Medical College of Virginia, Richmond, on June 1 was presented with an award for "distinguished professional service" from the Panzer College of Physical Education and Hygiene of East Orange, New Jersey. Dr. Siersema was graduated by that college in 1922, and later graduated in medicine from the Medical College of Virginia.

Course in Postgraduate Gastroenterology.

The National Gastroenterological Association announces that its course in Postgraduate Gastroenterology will be given at the Hotel Statler in New York City on October 12, 13, 14, 1950.

The course will again be under the personal direction of Dr. Owen H. Wangensteen, Professor of Surgery, University of Minnesota Medical School, with a distinguished faculty for the Course from medical schools in New York City as well as out of town.

For further information and enrollment write to the National Gastroenterological Association, Dept. GSJ, 1819 Broadway, New York 23, N. Y.

Dr. Elbyrne G. Gill

Of Roanoke read a paper by invitation before the First Annual Clinical Meeting of the New York Eye and Ear Infirmary Alumni Association on May the 12th. His subject was "Recent Advances in Extracapsular Cataract Surgery."

Medical College of Virginia News.

Dr. Randolph H. Hoge, professor of gynecology, and Dr. Arthur E. Gathright, Jr., assistant professor of clinical medicine and assistant director of the department of oncology, Medical College of Virginia, will be two of the four speakers to give a series of extramural post-graduate cancer lectures in the state of Oregon this year. The lecture series is sponsored by the Oregon State Medical Society and the Oregon State Board of Health. This will be the second year that Doctor Hoge has been invited by the group to appear on the program of the lecture series.

The MCV faculty members will leave by plane for Oregon. The lecture series will start June 12 and continue through June 23.

Plastic Surgery Award.

The Foundation of the American Society of Plastic and Reconstructive Surgery offers as its 1950 award $500.00 (first prize of $300.00, second prize of $200.00) and a Certificate of Merit, for essays

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on some original unpublished subject in plastic surgery. Competition shall be limited to residents in plastic surgery of recognized hospitals and to plastic surgeons who have been in such specific practice for not more than five years. The first prize essay will appear on the program of the forthcoming annual meeting of the American Society of Plastic and Reconstructive Surgery, to be held in Mexico City, November 27-29, 1950. Essays must be in before August 15, 1950.

For full particulars write the Secretary, Dr. Clarence R. Straatsma, 66 East 79th Street, New York, N. Y.

The American Congress of Physical Medicine

Will hold its twenty-eighth annual scientific and clinical session August 28-September 1, inclusive, at the Hotel Statler, Boston, Massachusetts. Scientific and clinical sessions will be given on these days and all sessions will be open to members of the medical profession in good standing with the American Medical Association.

In addition to the scientific session, the annual instruction seminars will be held August 28-31. These seminars will be offered in two groups. One set of ten lectures will consist of basic subjects and attendance will be limited to physicians. One set of ten lectures will be more general in character and will be open to physicians as well as to therapists, who are registered with the American Registry of Physical Therapy Technicians or the American Occupational Therapy Association. Full information may be obtained by writing to the American Congress of Physical Medicine, 30 North Michigan Avenue, Chicago 2, Illinois.

The Potomac Society of Anesthesiologists,

Composed of over 100 physicians of Virginia, West Virginia, the District of Columbia and Maryland, held its last meeting of the season May 31, 1950, in the Medical Society Auditorium in Washington. At the business meeting the following officers for the 1950-1951 season were elected:

President, Dr. Donald H. Stubbs, Alexandria; president-elect, Dr. William E. Bageant, Washington; vice-president, Dr. John J. Mattare, Chevy Chase, Md.; and secretary-treasurer, Dr. Joel B. Hoberman, Arlington. The executive Committee is composed of: Dr. Thomas Walker and Dr. Irving B. Gold, Richmond; Dr. Joseph B. Bogan and Dr. Charles S. Coakley, Washington; Dr. E. Hollister Davis, Baltimore; Dr. Ernest F. Poole, Hagerstown; Dr. John F. Morris, Huntington, W. Va.; and Dr. S. Elizabeth McFetridge, Martinsburg, W. Va.

This society was founded March 19, 1948 with its object the advancement of the Science and Art of Anesthesiology, especially in Virginia, West Virginia, the District of Columbia and Maryland, as well as to stimulate interest and promote progress in the specialty of Anesthesiology.

Office Space Available

For one doctor in the suite now occupied by two general surgeons, at 1204 Colonial Avenue, Norfolk. Contact Neil Callahan, M.D., 315 Medical Arts Bldg., Norfolk, Virginia—telephone Norfolk 27757. (*Adv.*).

For Sale.

Practically new Jones metabolism machine. Write "Metabolism", c/o VIRGINIA MEDICAL MONTHLY, 1200 East Clay Street, Richmond 19, Virginia. (*Adv.*).

OBITUARIES

Dr. Washington Budd Sager,

For many years a medical practitioner of Danville, died June 10th at the age of 69. He was a native of Shenandoah County and attended the Medical College of Virginia, later graduating from Jefferson Medical College, Philadelphia, in 1908. He moved to Danville in 1917 and had since practiced there. He was a member of his local and the State medical societies and of the American Medical Association. His wife and several children survive him.